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AUGUST
1934

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FLEET OWNER

THE FERGUSON PUBLISHING CO., 90 WEST ST., NEW YORK, N.Y.

Devoted to the Better Operation and Maintenance of Truck, Bus, Taxicab, Passenger Car and All Automotive Fleets

FEATURE ARTICLES:

Efficient Maintenance in a Department Store Fleet
By L. G. Hahn

What the S. A. E. Heard About Accident Control
By J. M. Orr

Brewer's Dozen Has All-Aluminum Bodies
(An Experience Story)

Synthetic Enamels for Passenger Cars?
By H. Clay Fischer

DEPARTMENTS:

Trouble Shooters' Forum
As We Go to Press (News)
John Law Sez: (Court Decisions)
New Products for Road and Shop
Question-of the Month Club

"SHOW ME," said the Fleet Owner
. . AND THAT'S JUST WHAT WE HAVE DONE!

HERE IS THE TEST:

1 Hot Oil . . . . . 24 hours
2 Oven Heat . . . . 76 hours
3 Hot Oil . . . . . 24 hours
4 Salt Water . . . . 24 hours
5 Oven Heat . . . . 15 hours

Cable "A" FAILURE!

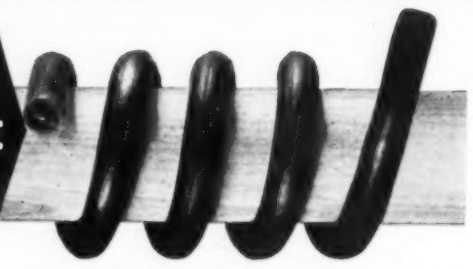
Cable "B" FAILURE!

Cable "C" FAILURE!

Cable "D" FAILURE!

NEW PACKARD "FOUR-FORTY" IGNITION CABLE proves its superiority in more ways than one

HERE IS THE PROOF



The test described at the left was made on every leading brand of lacquered cable. Afterward, the cables were wrapped on 1" mandrels, with the results as shown. Only the Packard "FOUR-FORTY" retained its original characteristics of flexibility, appearance and usefulness.

TEST IT YOURSELF

One of your units, equipped with "FOUR-FORTY" and operated under the most severe conditions, will prove to your entire satisfaction that SOMETHING NEW AND FINER has been accomplished by Packard! Such a test will show how you can save yourself at least 1 out of every 3 cable replacements.

BALANCED CHARACTERISTICS

There is nothing on the market today that compares favorably with the new Packard "Four-Forty" in balanced characteristics! This cable is made of a secret-formula inorganic-base compound which has amazing resistance, not only to ONE of the well-known "enemies" of cable efficiency, but to ALL of them, including heat, oil, corona, age and wear. Packard has labored until it could give you a cable that could prove its superiority in MORE WAYS THAN ONE. Pin your faith on Packard "FOUR-FORTY"—and you can't go wrong; see your jobber today. Packard Electric Corporation, Warren, Ohio.

Packard
REG. U. S. PAT. OFF.
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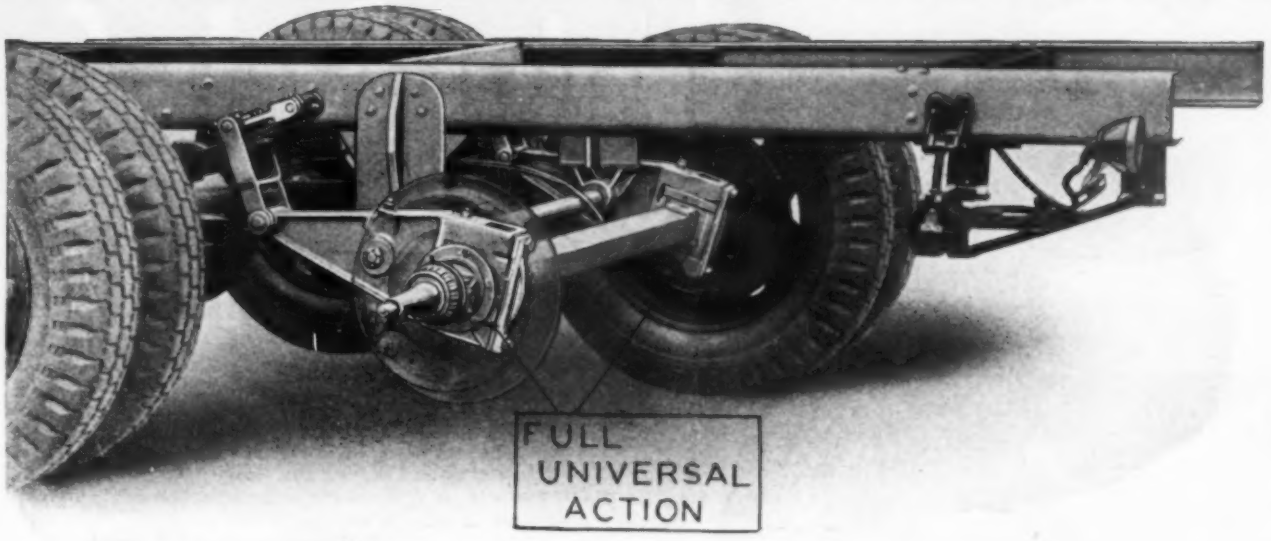
THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

UTILITY was FIRST in the UNITED STATES to INVENT, PERFECT and MARKET SIX-WHEEL ATTACHMENTS.

Made for 4-Wheel Trucks of all makes and capacities.



Model 15 for FORD and CHEVROLET trucks

UTILITY SIX WHEEL ATTACHMENTS are available for prompt installation in all principal cities. Get prices and discounts from nearest distributor.

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10 Years' experience in Six Wheel Attachment Manufacturing

Has all proven Utility features of which these are unique, exclusive and vital —

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4. **Maximum flexibility and simplicity.**
5. **No change in truck parts to install attachment.**

Write for our special folders giving full description of Utility Six Wheel Attachments for FORD and CHEVROLET Trucks.

Illustrating Model 15, for trucks of the Ford and Chevrolet Class, as shipped completely assembled, with frame extension. Ready to slip the extension over the truck frame, rivet or bolt it on, connect up the brake levers and the spring shackles, and drive away as a proven 6 wheel truck.

5 HEAVY DUTY Motor Parts for Fleet Operators

THOMPSON "S" VALVES

Known to automotive engineers as the finest all steel valves made. Combine the maximum in heat resistance, wear and sealing efficiency. Standard equipment in leading cars, trucks and tractors, and 90% of all American-built aviation engines.

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Valve sticking or sluggish action caused by failure of oil from crank case to get to upper part of guide is eliminated by Thompson Graphited Valve Guides. Filled with compressed graphite compound, they provide lasting lubrication for entire bearing surface of the guide, independent of oil in crank-case.

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Because of chromium's low coefficient of friction, extreme hardness, and resistance to pitting and corrosion in the engine, Thompson Chrome-Plated Piston Pins wear much longer than lapped finished pins. Sold in perfectly matched sets.

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Will lower maintenance costs and greatly increase mileage for piston and cylinder walls. Can be fitted with half the regular clearness and still not bind or score. Permit immediate engine operation at practically full speed and power.

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Say "I saw it in FLEET OWNER"—It Helps!

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USE THE SPARK PLUGS CHAMPIONS USE

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Champion Spark Plugs have the reputation—and the records to prove it—for making every engine a better performing engine. For eleven consecutive years, Champion equipped engines have won the vast majority of all racing, endurance, speed, hill-climbing and economy events run throughout the world. In the truck and bus field, Champions show an equally impressive record. It is no wonder, because the same materials, fundamental design, construction and engineering ingenuity is put into commercial type Champions that goes into all Champions. For absolute dependability in every engine, and under every operating condition, specify Champions. And don't forget that Champion Extra Range Spark Plugs insure maximum efficiency and economy with an absolute minimum number of types.

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See Champion Spark Plugs made from the raw sillimanite ore through processing, forming of insulators, assembling and testing, in the great Ford Motor Company exhibit at the Century of Progress.

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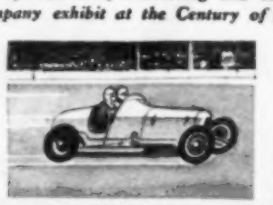
EXTRA-RANGE SPARK PLUGS

INDIANAPOLIS—*Bill Cummings, winner of the Indianapolis 500 Mile Race, set a new track record of 104.863 m.p.h. Champion Spark Plugs were used exclusively in this race.*



INDIANAPOLIS—*In the qualifying trials for the Indianapolis 500 Mile Race, Kelly Petillo driving a Champion equipped Red Lion Special, set two new track records averaging 119.329 m. p. h.*

MEXICO CITY—*An Auburn "12" equipped with Champions, won the Mexico City-Puebla-Tehuacan race, establishing a new record over one of the most difficult mountain roads in Mexico.*

ITALY—*The Grand Prix Parma (Poggio Diberceto), a combination road race and hill climb over hazardous mountain turns, was won by Barbieri in a Champion equipped Alfa-Romeo.*

ALTAMONT, N. Y.—*Lloyd Vieaux set a new track record of 29 seconds flat here over a half-mile circuit. Vieaux used Champions to win every event he entered, including the feature race.*

Say "I saw it in FLEET OWNER"—It Helps!

FEATURES

GMC valve-in-head engine—94 h.p.—230 ft. lbs. torque—stellite exhaust valve seats—downdraft carburetor—oil reservoir air cleaner—roller bearing fan with dual "V" belt drive—9" frame—booster brakes—448.7 sq. in. braking area—cast nickel iron brake drums—radius rod drive—standard S. A. E. loading space—full floating spiral bevel rear axle—needle bearing universal joints—spoksteel wheels.

It's here! A brand new General Motors Truck. A big, husky 5-ton truck—priced at the lowest figure ever quoted on a GMC of this capacity. *In fact, priced $1,000 under the average price of all other leading 5-ton trucks!*

Not only in price, but in design, construction and performance, this new GMC worker is just what thousands of owners will find exactly fitted for the job of hauling 5-ton loads more profitably.

Any GMC dealer will gladly tell you more about this latest addition to the modern, complete line of GMC quality trucks. Or an interesting descriptive booklet will be mailed upon request.

GENERAL MOTORS TRUCKS AND TRAILERS

GENERAL MOTORS TRUCK COMPANY — Time Payments Available Through Our Own Y. M. A. C. — PONTIAC, MICHIGAN

The

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners who maintain their own Repair and Service Shops and devoted to the better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

VOL. 13 New York, August, 1934 No. 2

Table of Contents

Stripping the Thread	Editorials	13
Maintaining a Dept. Store Fleet	L. G. Hahn	14
Preventing Accidents on the Road	J. M. Orr	16
Brewer's Dozen Is All-Aluminized		22
Two Savings from the Scrap-Pile		24
Synthetic Enamels for Pass. Cars?	Clay Fischer	26
Analyzing Electrical Failures	M. Mallory	28
Grinding Work in the Lathe	John Sheehan	32
Trouble Shooters' Department		36
As We Go to Press		39
What Do You Read? (Literature)		40
New Stuff for Road and Shop		41
Question-of-the-Month Club		44
Index to Advertisers		58

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ABC

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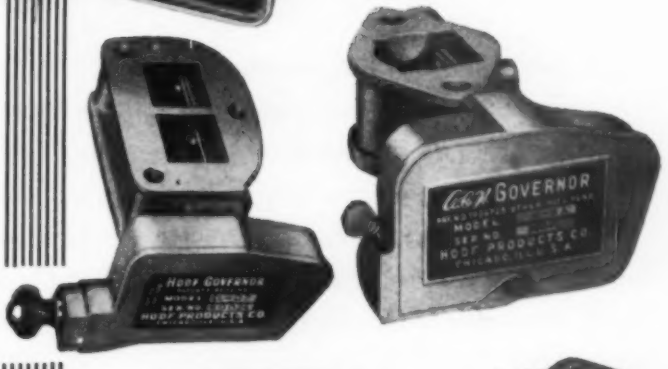
governor for every motor.

PERFORMANCE

on the road under all traffic conditions is responsible for the unprecedented growth in demand for this exclusive cantilever spring governor.

Ask your Jobber, or write us for prices and 60 page July 1934 Sales Manual.



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166 NORTH FRANKLIN ST., CHICAGO, ILL.

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With Patented Hoof Cantilever Spring

Adopted by the World's Largest Fleet

ARE YOU TRYING TO DEFLATE BATTERY MAINTENANCE COSTS?

Don't overlook a chance to cut costs. Battery maintenance can cost plenty or little—depending chiefly on the kind of batteries you use. It is no idle claim that Exides can cut your costs. Fleet operators, from Maine to Florida, from the Atlantic to the Pacific, have found that Exides are economical.

There is always a reason for a fact like this. With Exide Batteries, it is the result of dependability, freedom from trouble, long life, and the extra power built into them . . . the result of nearly half a century of building Exides for every storage battery purpose in the world. There is an Exide for every size and type of truck—each one especially built for its job. Standardize on Exides, and let your cost-records show you the saving.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
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Exide
BATTERIES
FOR EVERY TYPE TRUCK

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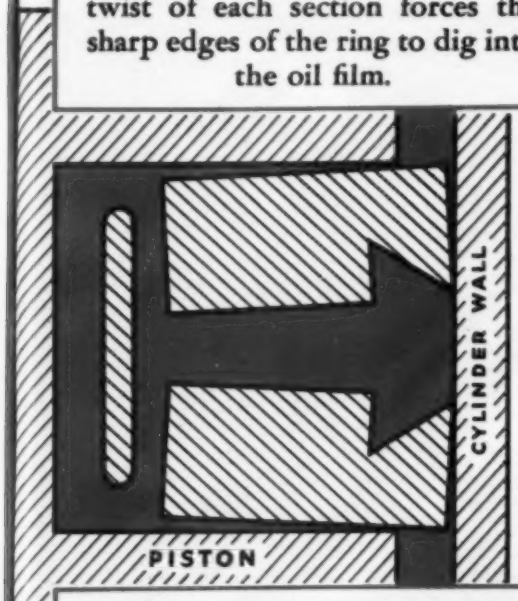
EXIDE ENGINEERING SERVICE
conducted by trained and experienced battery engineers is available without charge to fleet operators. Make use of this service—it can help lower your maintenance costs.

ONLY Pedrick Brings you HYDRAULIC ACTION

THE *Most Positive* OIL CONTROL PRINCIPLE EVER DEVELOPED IN PISTON RING DESIGN!

Note below how the tortional twist of each section forces the sharp edges of the ring to dig into the oil film.



Cross section of Hydraulic compression ring exaggerated to illustrate how the twist or tortional force of each of the sections causes them to dig into the oil film on the cylinder on both the up and down stroke of the piston, packing the oil between and behind the sections.

Hydraulic Action—an exclusive Pedrick feature—has brought to the fleet operator the ability to stop oil loss, stop piston slap, eliminate blow-by, increase gas mileage and compression and assure this efficiency at all speeds. This means economy of operation, and the proof of the efficiency of this new principle in piston ring design is the ever-increasing number of fleet operators who are using Pedrick Hydraulic rings. Hydraulic Action has revolutionized piston ring performance. Write us today for complete information.

Send Today for Your Free Copy

Let Hydraulic Action cut your maintenance expense. The benefits of this new principle of motor reconditioning are fully explained in the S. A. E. booklet entitled "Hydraulic Action in Piston Ring Design." Write for your copy.

Wilkening Manufacturing Co.
Philadelphia

Say "I saw it in FLEET OWNER"—It Helps!

THEY ALWAYS COME BACK FOR MORE

Toledo Super-Forged Valves are especially designed to meet every demand of today's high speed, high compression motors. Made of the finest heat-resisting steel, they are guaranteed to stand up under toughest punishment. For best results, for quiet, full-powered performance, equip your fleet with Toledo Super-Forged Guaranteed Valves and new Toledo Valve Guides.

GUARANTEE

Toledo "Type S" Super-Forged Valves are guaranteed. Your jobber will give you, without charge of any kind, a new valve in exchange for any Toledo "Type S" Super-Forged Valve which proves defective in service.

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New York, 17 W. 60th Street » Chicago, 1225 South Wabash Avenue » Atlanta, 279 Ivy Street, N. E. Dallas, 2805 Commerce Street » Kansas City, 14th and Oak Streets » Los Angeles, 1341 South Hope Street » San Francisco, 528 Larkin Street » Portland, 408 N. W. 12th Avenue » *In Canada: The Toledo Steel Products Company, Ltd., 14 Breadalbane Street, Toronto*

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The Guaranteed Valve

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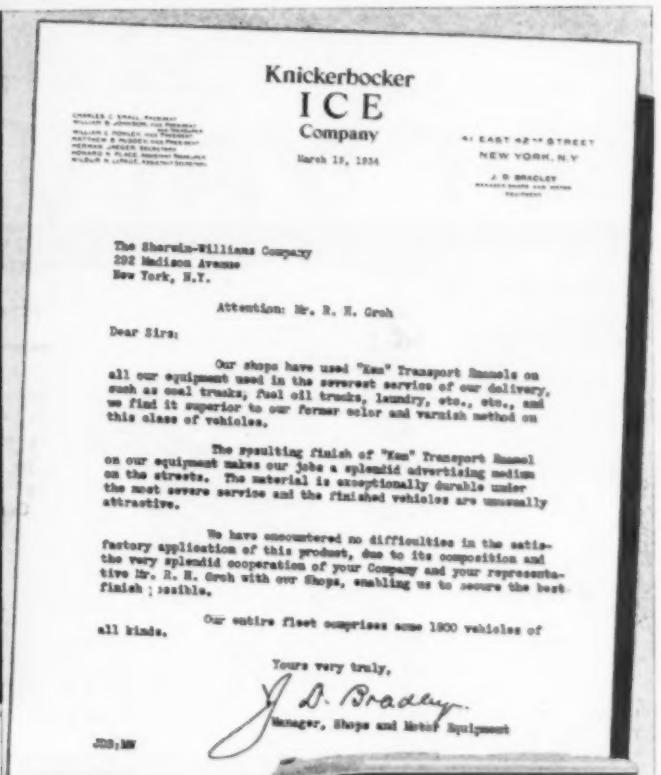
KEM TRANSPORT ENAMELS *Standard* on 1800-vehicle Knickerbocker Ice Fleet



Knickerbocker
ICE
Company

March 19, 1934

The Sherwin-Williams Company
202 Madison Avenue
New York, N.Y.

Attention: Mr. R. H. Groh

Dear Sirs:

Our shops have used "Kem" Transport Enamels on all our equipment used in the severest service of our delivery, such as coal trucks, fuel oil trucks, laundry, etc., etc., and we find it superior to our former color and varnish method on this class of vehicles.

The resulting finish of "Kem" Transport Enamel on our equipment makes our jobs a splendid advertising medium on the streets. The material is exceptionally durable under the most severe service and the finished vehicles are unusually attractive.

We have encountered no difficulties in the satisfactory application of this product, due to its composition and the very splendid cooperation of your Company and your representative Mr. R. H. Groh with our Shops, enabling us to secure the best finish possible.

Our entire fleet comprises some 1800 vehicles of all kinds.

Yours very truly,

J. D. Bradley

Manager, Shops and Motor Equipment

JDB:MW

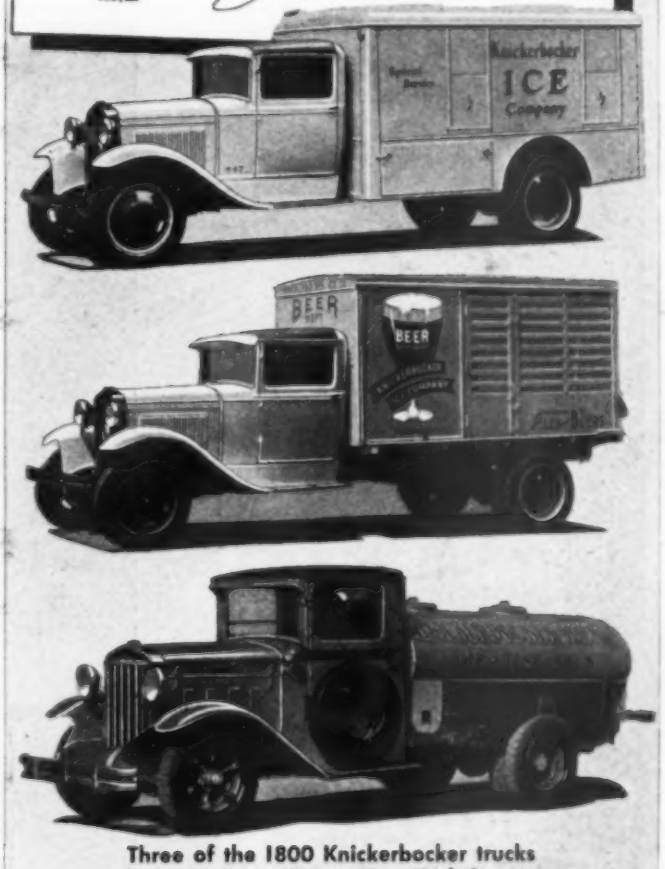
Sherwin-Williams Kem Chosen for one of largest motor fleets in Metropolitan New York

Eighteen hundred vehicles in constant service present a genuine maintenance problem. Trucks of every size, shape and type must be kept on the road and out of the shop.

Where service is severest, on coal and fuel oil trucks, Knickerbocker has chosen Kem Transport—and has found it to completely meet their exacting requirements. "The material is exceptionally durable under the most severe service," says Mr. Bradley, "and the finished vehicles are unusually attractive."

Specify Kem Transport Enamel on your next refinishing job and study its ease of application . . . its lasting gloss . . . its long life and durability. On request, finishing engineers are at your service to assist you in obtaining the best painting results at the lowest cost. They will work out complete finishing specifications for your fleet without charge.

Address The Sherwin-Williams Co., Dept., 623, Cleveland, Ohio.

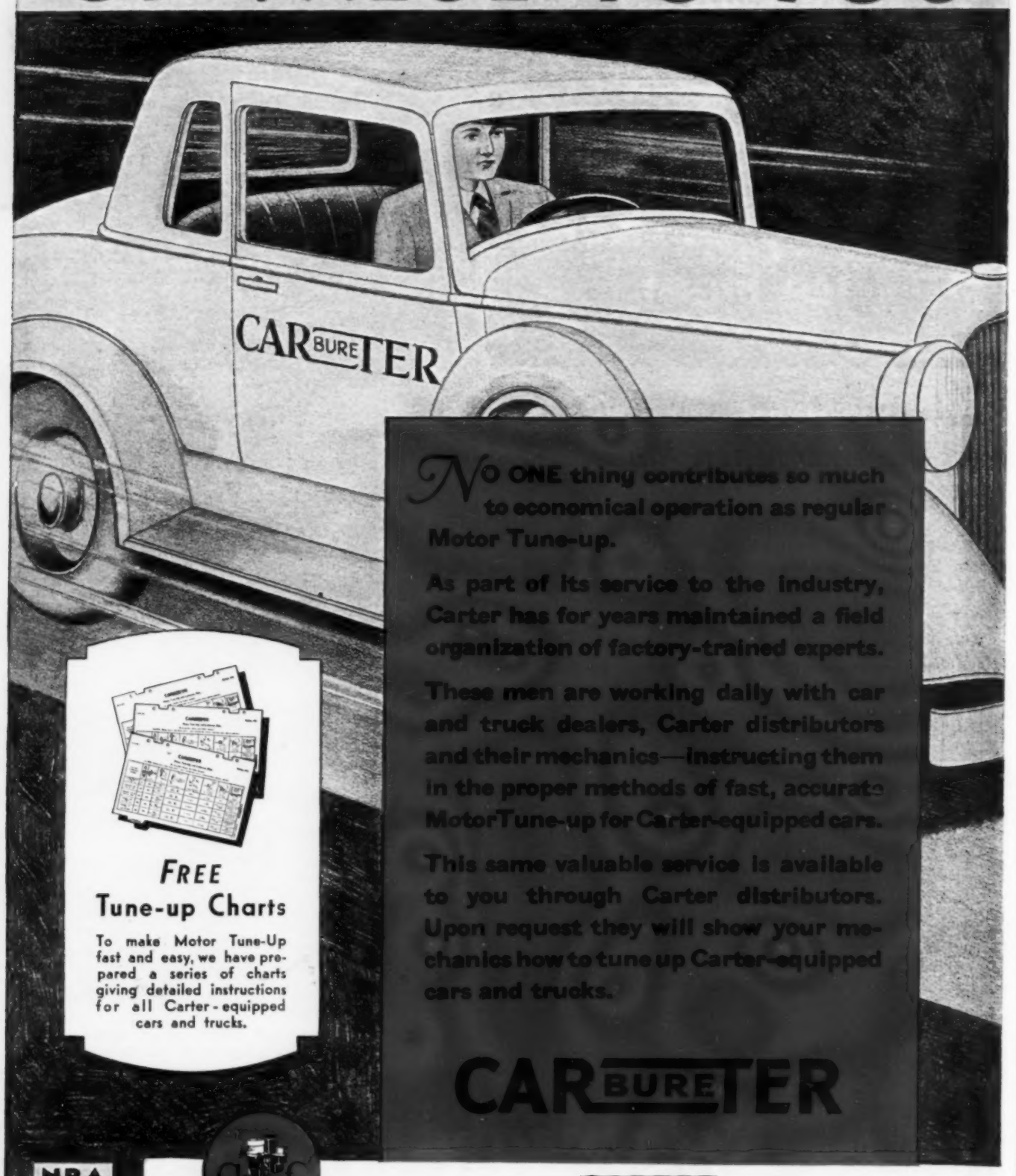


Three of the 1800 Knickerbocker trucks in constant service on New York Streets

SHERWIN-WILLIAMS
KEM TRANSPORT ENAMELS

Say "I saw it in FLEET OWNER"—It Helps!

A Service
OF VALUE TO YOU



NO ONE thing contributes so much to economical operation as regular Motor Tune-up.

As part of its service to the industry, Carter has for years maintained a field organization of factory-trained experts.

These men are working daily with car and truck dealers, Carter distributors and their mechanics—instructing them in the proper methods of fast, accurate MotorTune-up for Carter-equipped cars.

This same valuable service is available to you through Carter distributors. Upon request they will show your mechanics how to tune up Carter-equipped cars and trucks.

CARBURETER

FREE
Tune-up Charts

To make Motor Tune-Up fast and easy, we have prepared a series of charts giving detailed instructions for all Carter-equipped cars and trucks.

NRA

Division of American Car and Foundry Company

CARTER
CARBURETOR CORPORATION
2834-52 NORTH SPRING AVENUE • ST. LOUIS

Say "I saw it in FLEET OWNER"—It Helps!

VOL. 13
NO. 2

The FLEET OWNER

AUGUST
1934

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

Stripping *the* Thread » »

(The Editor's Column)

Breathes there a man with soul so dead,
Who never unto himself hath said,
When on a bolt, he stripped the thread:
"*%..%x ')x**z v¼"*'##"*!**

DO YOU KNOW YOUR COSTS?

● Here is a good way *not* to figure your costs. The story comes from a paint salesman, who called on car service stations. One enterprising garage man was seen to quote $23.00 for refinishing a big Pierce-Arrow sedan. When asked if he had figured his costs and if he was making any money on the deal, he said, "Sure, I am making four bucks." He said that his labor and material only amounted to $19.00. "Well, what about your rent, compressed air, the nice girl out front and your own salary?" said the inquiring salesman. "Why, we're all here anyway" said the garage man. Not only in the garage business are mistakes like this being made. Many fleet operators fail to include *all* overhead in their costs and this is sometimes responsible for operating losses, particularly in such industries as contracting, trucking-for-hire and kindred ones. This is also responsible for much price-cutting in these industries and is something which the Trucking Code hopes to eliminate.

●

ASK THE MAINTENANCE MAN

● Last month another bus accident took the lives of fifteen persons and injured nineteen others. As usual, the bus industry was again the object of much denunciation and the prosecutors were not hesitant in referring to the particular vehicle in question in no uncertain language. It is not our desire to delve into the matter and seek to place responsibility. By the time this is published, all of that will have been done. Rather, let us relate a recent incident that occurred to us, which might have paralleled the recent disaster, had ill fortune overtaken us as it did them. It was the writer's lot to embark on an outing some thirty miles out of the city. Several buses were chartered, some of which were of the modern type and some of which were a dozen or so years old. The latter were still being used in sight-seeing work around the city, and in trips to an amusement park, the routes being straight, flat and easy-going for the purpose. But when chartered for the outing, different conditions were encountered, a hilly route *had* to be negotiated, and the obsolete equipment began to show itself up as unsuitable for the purpose. Even the slightest down-grade had to be made in low-gear and much speed was sacrificed on the subsequent upgrades. The odors of exhaust gases mingled with those of burning brake lining. And to make matters worse, the driver, used to city work, completely lost his bearings and took an even more hilly route to reach his destination. We arrived, several hours late, and with a bad taste in our mouths for the bus industry in general. And that, friends, is what happens when equipment is used in service for which it is not suited. The moral of which is, if you are a bus operator, have your chartering executive consult your maintenance man, when buses are being temporarily assigned to different territory. He should be able to advise you, without much effort, whether or not the vehicle in question "can take it."

●

WHAT! NO CIGAR LIGHTER?

● As far back as six years ago, to our recollection, some far-sighted truck manufacturers have been equipping their truck cabs with electric cigar-lighters as standard equipment. At first blush, this seems to have no importance and absolutely no significance. But there's more to it, when you analyze it. In spite of the most rigid "No Smoking" rules, drivers *will* smoke. Matches, besides increasing the fire risk, produce a blinding glare when struck in a dark driver's cab. Then too, did you ever consider the number of extra stops that are probably made, and the time consumed, while the driver is endeavoring to borrow a match? Put up "No Smoking" signs in your cabs, if you will. But that won't keep an inveterate smoker from puffing at his weed, and it won't decrease the accident hazard one bit, unless you hire a detective to watch the driver, and another detective to watch the first one, etc. Mightn't it be better to get good mileage from contented drivers and actually *help* them to smoke if they insist on it? It seems so to us, and we haven't any proprietary interest in a cigar-lighter factory, either. Since this publication goes to fleet executives and *not* to drivers, we can feel free to discuss this subject. Therefore we would be glad to receive any *pros* and *cons* on it. We're sure some of you may have had satisfactory experience in this connection, or otherwise . . .

P.S.—And if any of your drivers smoke the same brand of cigars that we do, they'll require a lot of matches.

●

DON'T EV-ER DO THAT!

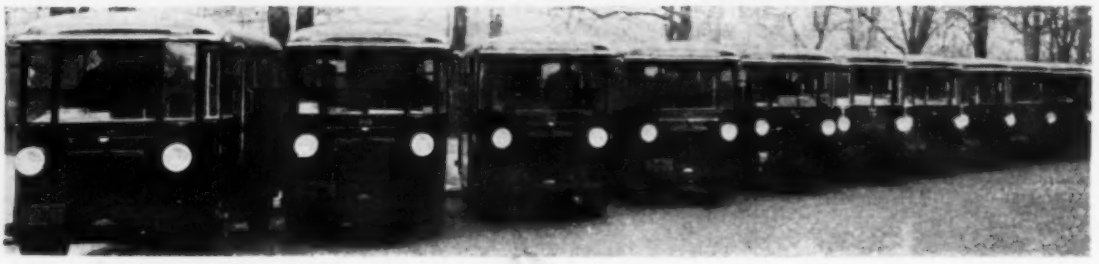
● "Guess I'll idle down to about 45 M.P.H. at the next railroad crossing, so that I can stop if there's a train coming." (P. S. He lost the race.)

●

H. Clay Fischer
Editor

●

Maintenance *in a* Department Store Fleet



An Interview with
L. G. Hahn,
Supt. of Transportation, Hutzler Bros., Baltimore, Md.

How This Fleet of Forty Department Store Trucks is Maintained and Some of the Truck Operating Economies Practiced

THE fleet of Hutzler Brothers Department Store, Baltimore, Md., consists of forty delivery trucks, ten of which are of the door-to-door type vehicle, as shown above. We find that by watching operating practices carefully, this has helped to keep down total expenses and maintenance costs.

Our trucks average 50 miles per day. They are lubricated and washed at night, to be ready for the next day's run. Greasing and oil changes are taken care of at necessary intervals. When trucks show additional oil consumption, the oil-change period is stepped down. Truck inspection and overhaul work is done at the discretion of the garage foreman.

Speedometer readings are checked regularly and the rule is to try to inspect every truck at least once in ten days. Should at any time the driver think any repairs or adjustments are necessary, he indicates such, on a very simple driver's report form (size 4 x 7 inches). This is of the general type that has been illustrated in this publication from time to time. It contains spaces for the date, car number, driver's name, and the nature of the difficulty, with a number of blank lines for other remarks.

When filled in, these driver's report forms are turned in to the shop foreman, who makes an attempt to analyze the difficulty and details the necessary repairs to be made by the mechanics. In the event that the work is not done properly, or if this report goes unheeded, so that the driver has to complain a second time, he reports it directly to the superintendent of transportation, and then the reasons are investigated.

One of our most satisfactory systems has to do with tire mileage. It is a cash bonus system, wherein an award of $2.00 is given to the driver of any vehicle whose tires (or tire) goes over 10,000 miles. This is awarded after the tire is taken off the truck for good. For every tire delivering in excess of this mileage, each driver gets two dollars.

Of course, we are the sole judge as to whether a tire is to come off or not, and as a result of this award system, the drivers naturally watch their tires very closely. This helps to keep the proper inflation pressures maintained, because our drivers have been trained to know that under-inflation lowers tire mileages.

Another benefit from this system, is that our drivers are not so anxious to make quick, short stops. It keeps them from slamming on their brakes and sliding the wheels. Now they are getting into the habit of letting the motor slow them down, instead of using the brakes too soon. They are also avoiding curb-chafing as they would the small-pox; also any other rough, abusive tire practices.

We, of course, keep a very close check on all tires, on a mileage basis, with an individual tire mileage record for each casing. While this may require a little extra clerical labor, it helps to cut down our costs. We have a special form for this purpose, a facsimile of which appears on this page.

A battery record, as such, is not kept, but a tag is put on all batteries when purchased, which shows the date, price, manufacturer, etc., and it stays right with each battery, to see if it comes up to the manufacturer's specifications and guarantee.

Every Saturday night, one man is detailed for the purpose of checking all batteries, as to state of charge and water; he takes hydrometer readings. If the reading goes below 1150, the next week's reading is watched to see if it will not come up. If not, it is just used for what service it will deliver, and is then junked.

HUTZLER BROS. DEPARTMENT STORE

Tire Record

Tire No.....Make.....Size.....Date Purch.....
Cost....Mileage Guarantee...Mileage Obtained...
Adjusted ..... Junked .....
Date On:..... Off:..... Total mileage.....
Put on as spare: Date.....Off .....
Wheels Inspected: .....
Remarks: .....
.....

An interesting tire mileage bonus system is described in the accompanying article. This form is the one used to keep close check on individual casing mileages. Note the line entitled "Wheels Inspected."

OVER 70,000 MILES

WASHINGTON MOTOR COACH SYSTEM
SEATTLE, WASH.

United American Bosch Corp.
Springfield, Mass.
Gentlemen:

The Pyro-Action Spark Plugs which we have installed in a large portion of our motor coaches and trucks are working out remarkably well.

Recently we removed a set of DM 95/26 spark plugs from a model 250Z Yellow Coach 1931 with a 616 motor which has given 70,122 miles of satisfactory operations. These motors are equipped with 12 spark plugs and all 12 of the original plugs were still in at the mileage. The bus in which these plugs were used runs between Seattle and Spokane over the Cascade Mountains which has several long and hard grades.

We think this is a remarkable record.

WASHINGTON MOTOR COACH COMPANY, Inc.
(signed) W. W. CHURCHILL,
Supt. of Equipment

with

Pyro-Action Plugs

HOW much mileage are you getting from the spark plugs you are using? Compare with the records of the Washington Motor Coach System, Seattle, Washington, which reports 70,122 miles of efficient service on a set of 12 Pyro-Action Spark Plugs.

Over 70,000 miles from a set of spark plugs! That's real spark plug economy! That's real spark plug dependability!

The new Pyro-Action Spark Plug was designed and constructed for a long healthy life—even in the modern heavy-duty engine. It has a close-grained insulator . . . a synthetic material of uniform structure, which has far greater capacity to resist high temperatures and to repel fuel and oil absorption. It has healthy electrodes . . . made of a new special alloy which, due to its unique ability to resist deterioration, gives longer life under severe operating conditions.

It has a healthy backbone . . . a huskier over-size center electrode. Compare it with that of other makes of plugs and see the difference. The unique construction of the ground electrode eliminates the danger of breaking when adjusting the spark gap.

The new Pyro-Action Plug has a wider heat range. This enables it to perform with long-lived efficiency under greater variation of operating conditions, where ordinary plugs give trouble due to fouling or burning.

How much money could you save a year if the plugs on your buses or trucks remained healthy and efficient many thousands of miles longer? Pyro-Action Spark Plugs offer you this economy. Ask the nearest representative to demonstrate on your own fleet why Pyro-Action Spark Plugs are the most dependable, and the lowest cost-per-mile plugs you can buy.

UNITED AMERICAN BOSCH CORP.
Springfield, Mass. New York Chicago Detroit

The American-Bosch Organization has always taken pride in creating, designing, building and selling only products that are superior to those commonly in use. Proven leaders in their fields, they are built up to a high standard of quality and not down to a price.

Pyro-Action

NRA CODE

the HEALTHY *Spark Plugs*

LICENSE ROBERT BOSCH A.-G.

Say "I saw it in FLEET OWNER"—It Helps!

Preventing Accidents on the Road

By J. M. Orr,
General Manager, Equitable Auto Co., Pittsburgh, Pa.

In Presenting Before the S.A.E. a Paper on "Accident Control in Fleet Operation," Mr. Orr Calls Attention to the Following Mechanical Factors and Quotes Remedial Suggestions from Various Fleet Authorities

THE National Safety Council reports that in 1933, 7% of the motor vehicles involved in fatal accidents were reported defective in some particular. Of this, 2½% had defective brakes, 2% improper lights, and ½% had defective steering mechanism. This does not show the full extent of mechanical failures due to some vehicles being damaged too badly to identify defects and the unwillingness of live drivers or the inability of dead ones to admit them.

Harold G. Hoffman, Commissioner of Motor Vehicles for the State of New Jersey, states that their records over the past few years indicate that 6% of New Jersey accidents are caused by defective mechanism of cars or faulty road construction.

The Committee on Motor Vehicle Maintenance of the National Conference on Street and Highway Safety estimates that defects contribute in 15% of all accidents.

In commercial fleets, the percentage of mechanical defects contributing to accidents is low. In the Oklahoma Gas and Electric Company for instance, H. R. Grigsby, Superintendent of Transportation, informs us that in the past 2½ years, there have been only three accidents in 9½ million miles of operation, that could be attributed to mechanical defects. Mr. Grigsby's fleet had an accident frequency during the period of 1.215 compared with a national average of 2.42 accidents per 100,000 miles in public utility operations, taking first honors in the National Safety Council Fleet Contest.

Although this artist's conception of the accident-prone vehicle is slightly exaggerated, it should be remembered that too much attention cannot be paid to the mechanical condition of the vehicle from a safety standpoint. Read the article and you'll find all the details comprehensively summarized.—H. C. F.

For the purpose of this discussion, we must assume that fleet vehicle maintenance practices are adequate, treating only those physical and mechanical factors that seem to be of most importance.

Frequent and careful inspection is apparently one of the cheapest methods of minimizing accidents. Vehicles must be inspected periodically to insure of their being in fit condition for the service to which they are assigned. This should never be slighted, and if it is, either as to scope or time interval, maintenance costs, accidents, accident repairs, and claims losses will increase.

Brakes, steering, lighting, horn, windshield, windshield wiper, and similar vital equipment should receive very close inspection and attention. The State of Pennsylvania compels each owner to submit his vehicle to a semi-annual inspection, and repair if necessary, of vital equipment.

Following accidents, however slight, in which mechanical defects are alleged, a thorough examination should be made to determine the fault, if any, and apply corrective measures.

Tires are now very dependable. Their design and manufacture has advanced rapidly in recent years, and they are responsible for fewer and fewer accidents. On the other hand, the best tires made can be grossly misused and contribute to the possibility of accidents.

W. C. Bray, Manager of the Truck and Bus Tire Department of The B. F. Goodrich Rubber Company, reminds us that tires usually fail suddenly and without warning as compared to mechanical failures. He says:

"A few years ago, large fleet operations were confined to restricted areas. Buses, trucks and pleasure cars are now operated over larger areas. Some operators are gradually striving for higher scheduled speeds, and as a result, experience premature tire failures, probably due to poor selection of tires and tubes, over-loading, under-inflation, use of improper size rims, and poor tire maintenance. Many tire manufacturers have introduced features in their product to prevent the destructive action of heat in the carcass of the tire. They have designed special bead constructions which have practically eliminated bead trouble and most all of them have improved their traction, which goes a long way toward safer transportation.

"Other operators are on slower schedules but their vehicles are ordinarily subjected to severe operating conditions due to road conditions and severity of routes traveled, and oftentimes by heavy overloading. These conditions have a tendency to cause premature failures further down in the carcass of the tire—in the region

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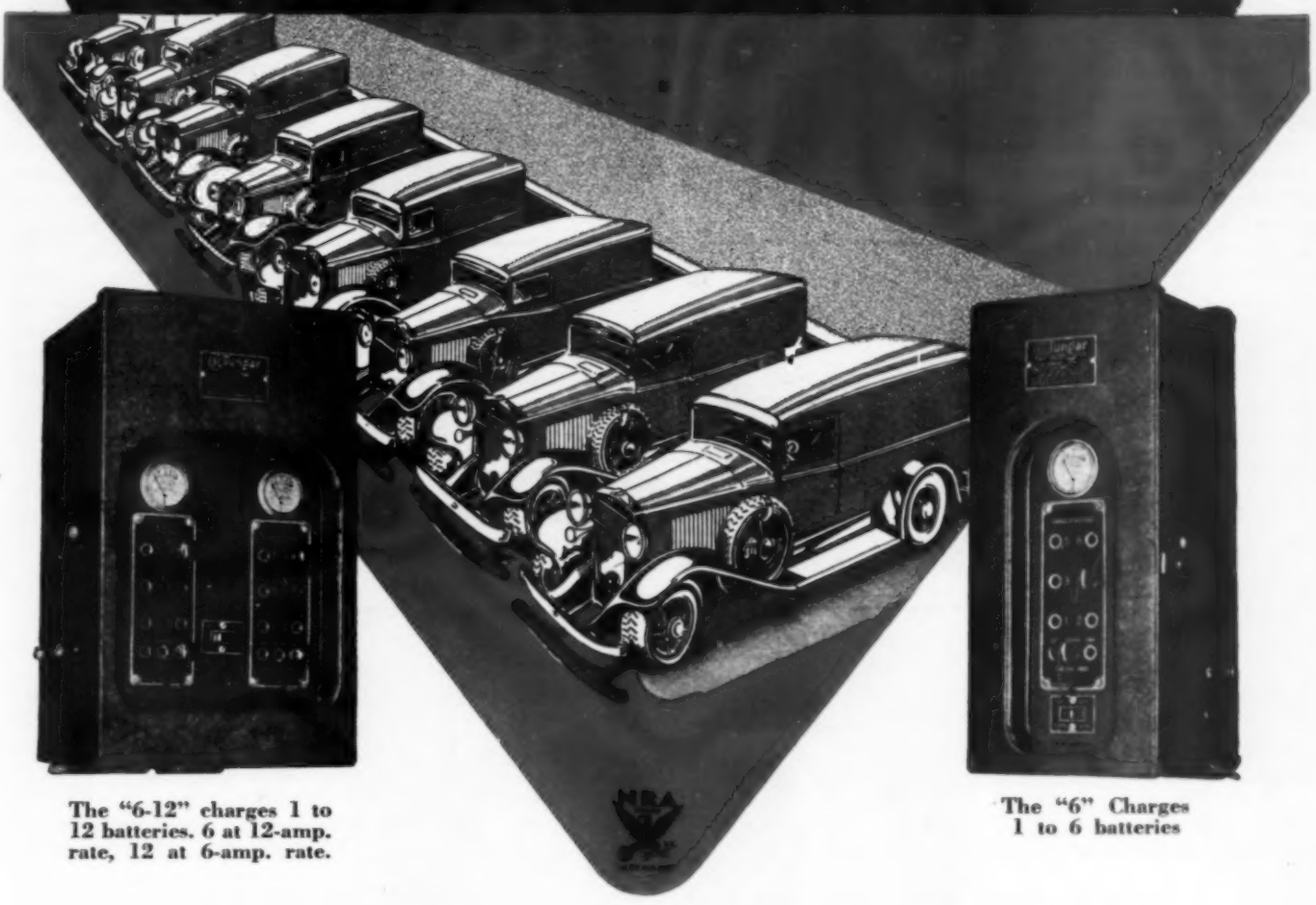
A TUNGAR BATTERY CHARGER
ELIMINATES RUN-DOWN BATTERIES



The "6-12" charges 1 to 12 batteries. 6 at 12-amp. rate, 12 at 6-amp. rate.

The "6" Charges 1 to 6 batteries

For over 17 years General Electric Tungar Battery Chargers have been used by many fleet owners to keep trucks, buses and cars on the road producing profits. There is no reason why any unit of your fleet should be tied up because of battery trouble.

Any one of the Tungar models from the "6" to the large "12-24" is equally easy to operate. Safe — because they are protected against line failure. Economical — because the charge tapers off as the batteries become fully charged.

Use a Tungar Battery Charger to help reduce maintenance costs by increasing the life of the batteries. It will soon pay for itself. A Tungar is one of the most inexpensive and valuable additions that can be made to your service equipment. For further information, write Section A-228, Merchandise Department, General Electric Company, Bridgeport, Conn.

FOR BEST RESULTS USE GENUINE TUNGAR BULBS

GENERAL ELECTRIC

AUTOMOTIVE PRODUCTS

MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT

Say "I saw it in FLEET OWNER"—It Helps!

ACCIDENT CONTROL *in* FLEET OPERATION *(Continued)*

of the beads and flippers. It is therefore important, in the selection of tires for this kind of an operation that the operator give serious consideration to proper sizing of tires.

"Most premature tire failures are due to blowouts, principally due to overload, underinflation, or high sustained speeds. Overload can only be corrected by properly tiring a vehicle or properly restricting its load. In respect to underinflation, most fleet operators recognize the advisability of maintaining regular inflation inspection, both in garages or terminals and while the vehicles are on the road. Regarding blowouts directly due to high tire temperatures, this can be greatly minimized by proper studies of each individual vehicle and its operating conditions. It is necessary that vehicles be adequately tired, adequate air pressure maintained, sustained road speeds governed as much as possible, sufficient brake drum clearances provided, and as much ventilation as possible given, particularly to the rear wheels.

"We have learned very definitely from our experience on bus lines the value of preventive tire maintenance. The dual matching of rear tires should be watched closely and governed to meet road conditions encountered. For example, on extremely highly crowded roads, tires having considerable tread design remaining should be placed on the outside and well worn or smooth tires on the inside dual positions. If this cannot be accomplished, a somewhat greater air pressure than normal can be used on the inside tire to equalize the load. This procedure has a tendency to increase the amount of rubber in contact with the road, prolonging tire life, and giving additional traction and safety.

"Tires should be regularly inspected for cuts and injuries which might develop into failures while the vehicle is on the road. It is usually better to apply new tires on the front wheels and use slightly worn tires on the rear."

Chains are an essential safety device in automotive operation. Their use has been the means of avoiding many accidents. They should be a fixed part of the equipment of a vehicle, available to operators not alone for winter hazards, but for mud that is apt to be encountered at almost any time by work cars and trucks. The make and type used should be chosen carefully, with correct application to various types of tire and wheel equipment.

There is one caution regarding the use of chains. Drivers have been known to rely too much upon them to preclude skidding, particularly on ice. One of the large oil companies does not allow the use of chains in the San Francisco area, because in the foggy season streets are very slippery and drivers take risks with them that they do not take without them.

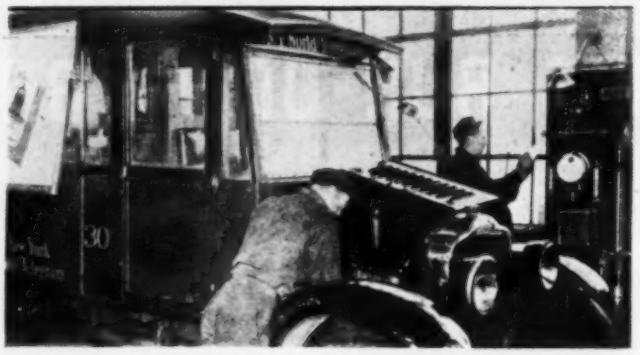
The gross weight capacity of vehicles should be observed in their loading. Appreciable overloads decrease the factor of safety of brakes, tires, springs, etc., and invite trouble. In a desire to get maximum load space capacity many big trucks are poorly arranged for safe operation.

Winch and hoist levers are, in many cabs, placed in such a manner and position as to unduly crowd and hamper the operators. Cabs lack good vision, seats and lazy backs are placed improperly with reference to instruments, foot and hand levers and the steering wheel. Cabs are generally uncomfortable, inducing fatigue quickly, upon the heels of which accidents follow.

Proper load distribution is important as it effects roadability and maneuverability. Front end stability can be varied greatly by the manner in which trucks are loaded. We have all seen trucks with long loads overhanging the rear end of their bodies, or with all of the load in the rear end, most of it behind the rear axle. Malpractices such as these decrease the degree of driver's control and increase the possibility of accidents. The transference of weight to the rear axle with improper loading is apt to be astonishing to those who have not given it particular attention. Faults of this type are in no way due to the inherent design of a vehicle, but to its improper usage.

The presence of carbon monoxide in cars or trucks can lead to very serious results. It is possible for this deadly gas to accumulate to a serious extent in a car following another at usual trailing distance as well as

(Please turn to page 20)



Often overlooked as a possible breeder of highway accidents, the presence of carbon monoxide in truck and bus cabs is listed as a possible offender. These three fleets (and many others) are "doing their part" to eliminate it by constant check-up and exhaust gas analysis. And, which is more, they are saving money, too, by enjoying better fuel economy.

MR. TRUCK OWNER! HAVE YOU TRIED THIS SPECIAL MOTOR OIL THAT CUTS LUBRICATION COSTS TO THE BONE?

FLEET OF THE 7 BAKER BROTHERS
PITTSBURGH, PA.

"We are better pleased with PENNZOIL products than any other we have used up to the present time"—is the way Mr. Nicholas J. Baker, of the 7 Baker Brothers, sums up their experience with PENNZOIL. "We do not hesitate in recommending PENNZOIL products to any fleet user whose trucks are subject to severe service and long runs," Mr. Baker continues.

FLEET OWNERS EVERYWHERE CHANGING TO PENNZOIL

FIND PENNZOIL COSTS LESS TO USE — KEEPS TRUCKS ON THE ROAD — REDUCES UPKEEP AND MAINTENANCE COSTS

ANY way you look at it, PENNZOIL is a money-saving oil.

In the first place, PENNZOIL reduces oil costs. The Bates Motor Transport Lines of Chicago cut oil consumption *right in half* with PENNZOIL. For PENNZOIL lasts longer. Gives better lubrication quart for quart.

Gas Savings, too

Next, PENNZOIL saves truck operators money on gasoline. Here's the way it does this. PENNZOIL is *3 times concentrated* — with all non-lubricating elements removed. This eliminates gas-wasting *engine drag.* Motors run freer and easier . . . and less gas is used.

Cuts Maintenance Cost

Then, because PENNZOIL'S *tough film* is not affected by the terrific punishment of long, fast hauls, heavy traffic driving — many troubles caused by poor lubrication are done away with. Equipment lasts longer. Frequent replacement is avoided.

Get All the Facts

Let us show you in detail—with actual facts and figures—how PENNZOIL is reducing costs for hundreds of fleet owners the country over. Let us explain how PENNZOIL can do the same for you. You can get this information quickly — without cost or obligation. Simply fill in and mail the coupon below.

NRA CODE

100% Pure Pennsylvania PENNZOIL Safe Lubrication

Member Pennsylvania Grade Crude Oil Association, Permit No. 2

THE PENNZOIL COMPANY

Executive Offices: Oil City, Pa.
Los Angeles, Calif., British-American Oil Co., Ltd., Canada.

THE PENNZOIL CO.,
Dept. B-8, Oil City, Pa.

Please send me information about how PENNZOIL Motor Oil cuts operating costs for fleet owners.

Name.....

Address.....

City.....State.....

Say "I saw it in FLEET OWNER"—It Helps!

WHAT *the* S. A. E. HEARD *about* ACCIDENTS *(Continued)*

from its own defects or poor combustion efficiency. Tests conducted by the Travelers Insurance Company clearly demonstrated that a dangerous concentration can, and often does, exist and that this fact may have a substantial bearing upon the frequency and severity of automotive accidents. The Travelers tests were made on vehicles that passed along a Connecticut highway. Included therein were cars and trucks, both privately and fleet operated.

Clinton Brettel, Superintendent of Garages of R. H. Macy & Company, tells us that a spot-check was made of certain of their trucks by an outside agency and that only negligible amounts of carbon monoxide were found in the cabs. Combustion efficiency was tested at the same time and found high, offering tangible

This highly dramatized drawing, showing the ill effects of carbon monoxide in truck cabs is not exaggerated. Many cases of drivers "falling asleep" are really monoxide cases. The American Mutual Magazine gets the credit for this portrayal.

proof that in fleets maintaining combustion efficiency within high practical working limits, carbon monoxide dangers are negligible.

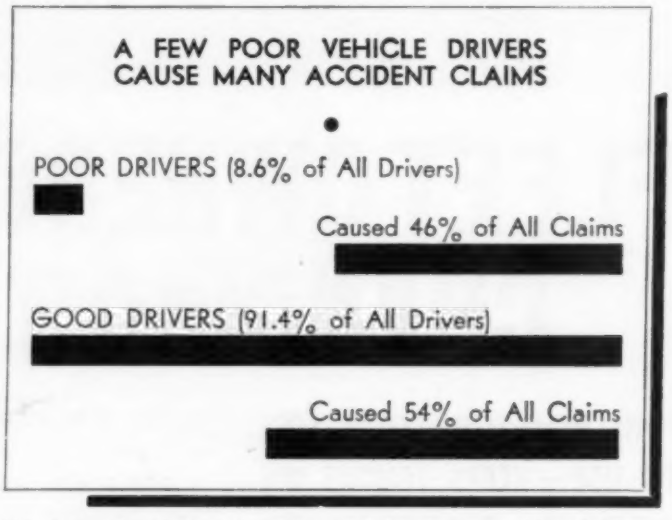
What Can Commercial Operators do to Reduce the Number and Severity of Fleet Accidents? They can provide the most modern, adequate and efficient vehicles possible for the work to be done. Safety should be engineered into the selection of chassis and cabs and the design of bodies.

At the insistence of Leonard V. Newton, Automotive Engineer, Byllesby Engineering and Management Corporation, I raised the question as to whether cabs can be too comfortable. He feels that more driver fatigue is caused by illy-designed, uncomfortable seat cushions and lazy backs than any other one truck design factor. He refers to Packard's exhibit in recent automobile shows of the form of an average individual compared with the contours of the Packard seat and back. To quote Mr. Newton:—"If we accept the size and dimensions of the Packard seat cushion and back as the shape and size necessary for the average individual, and compare them to the seats and lazy backs in the average truck, we can draw but one conclusion, i.e., the Packard is all wrong or else there has been no engineering done in truck cabs. I am inclined to believe that the latter is true."

Sidney J. Williams, Director of the Public Safety Division of the National Safety Council, in answer to the question says: "No. I have the definite conviction that it is not good policy to try to keep a driver awake by making him uncomfortable. On the contrary, the more comfortable we can make him, the more energy and attention he will have for his job." On the subject of sleeping cabs Mr. Williams says, "Where two drivers undertake to drive a vehicle for a long distance we feel quite strongly that this practice should not be permitted unless the sleeping arrangement is equivalent to a Pullman berth, otherwise the 'sleeping' is a farce and drivers operate practically without sleep, which is a serious hazard." A study of the effect of fatigue and loss of sleep in causing accidents is badly needed. I personally feel that cabs cannot be too comfortable and that this consideration for our drivers is necessary and desirable.

There is a danger in vehicle speeds that are too low to be accommodated safely to modern traffic requirements. Some accidents can be rather definitely attributed to this fact. Maximum allowable road speeds have been stepped up, with limits in some states removed entirely, and it would not be surprising to see minimum speed limits fixed for major highways.

Performance ability of trucks deserves careful consideration. In comment, Arnold H. Vey, Traffic Engineer for the State of New Jersey, considers this to be of vital importance, based upon experience in his state, where roadways are quite heavily congested by mixed vehicluar traffic. He says, and we all agree with him, that "Commercial vehicles should have sufficient


A FEW POOR VEHICLE DRIVERS
CAUSE MANY ACCIDENT CLAIMS
POOR DRIVERS (8.6% of All Drivers)
Caused 46% of All Claims
GOOD DRIVERS (91.4% of All Drivers)
Caused 54% of All Claims

This interesting information, prepared by American Mutual, shows how a few poor drivers can bring your accident total to dizzy heights.

motor power to permit reasonable speed performance on normal grades. This is a difficult subject insofar as national uniformity is concerned, because equipment that would be entirely adequate in some of the flat mid-western states would be entirely inadequate in mountainous states."

The unusual economic conditions of the past several years have precluded the normal replacement of many trucks that, while ample to perform at top speeds considered safe at their time of purchase, are now woefully unable to match the pace of traffic and new truck equipment.

Speed is relative. Forty miles per hour on the open highway is usually safe, while 25 or 30 miles per hour can be definitely unsafe in certain types of congested districts.

(*Please turn to page* 46)

What's *your* best JACK TRICK?

HERE'S a chance for you to win $50.00 in cash . . . You mechanics have shown a lot of ingenuity in the use of Blackhawk Hydraulic Jacks as portable power units. So now we want to bring your ideas into the limelight.

How do *you* use hydraulic jacks in shop work, outside of ordinary lifting and axle straightening? Maybe you have rigged up some new "gadget" with a hydraulic jack for installing gears, pressing on bushings, or what not.

« Let's look your "Jack Trick" over »

$150 in CASH PRIZES

Nothing to buy — no "labels or facsimiles" to send in — no "10c to cover cost of mailing," no "essay" to write, or any other trick conditions. Ideas are all that count.

Just send us a photo or your rough sketch or diagram, showing how you use a hydraulic jack successfully for some shop job that saves time and labor.

For the best "Jack Trick" submitted there's a cash prize of $50.00—for the second prize $25.00 — third prize $15.00 — fourth $10.00 — and for the next 10 best ideas $5.00 each. Cash in the mitt — no "certificates" or funny stuff. *Contest closes Oct. 1.*

• • •

Come on, you clever mechanics — let's see how *you* use hydraulic jacks for shop jobs!

BLACKHAWK

ENTRY COUPON

BLACKHAWK MFG. CO., Dept. FO-8, Milwaukee, Wis.
Enclosed is my "Jack Trick," with which I hope to win a Cash Prize.

Name.....

Shop Address.....

Preferred Jobber.....

Say "I saw it in FLEET OWNER"—It Helps!

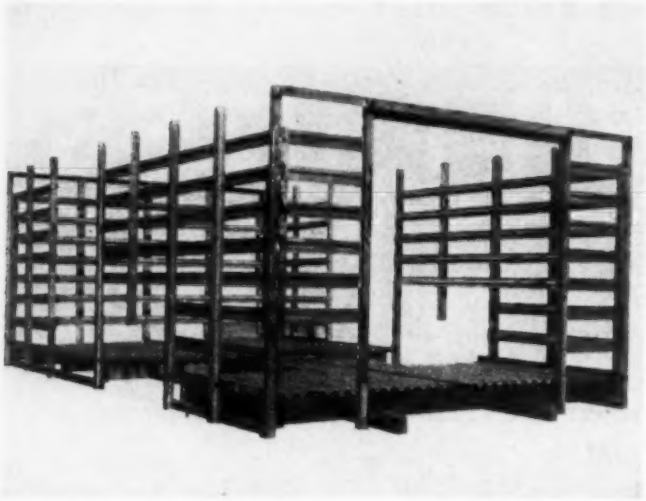
This Brewer's Dozen is All-Aluminized

Here is the Stroh Brewery Company's new fleet of twelve (count 'em) Dodge 2-ton heavy-duty trucks, equipped with all-aluminum bodies, which has set a new economy standard in local beer delivery, due to the tremendous reduction in dead-weight made possible by aluminum construction.

COMBINATION canopy and stake special "prairie schooner" type brewery truck bodies of practically 100 percent aluminum construction have recently been developed for twelve Dodge two-ton heavy duty chasses just added to the fleet of the Stroh Brewery Company, one of Detroit's oldest and largest breweries. It is said that these weight-saving bodies permit the hauling of 20 percent more payload and effect savings along other lines which have attracted widespread attention as one of the most interesting developments in brewery transportation since the repeal of prohibition.

Outstanding advantages resulting from the use of aluminum, in place of wood and heavier metal in this type of body, considered by Stroh officials as the most practical and efficient for local delivery of beer in both barrels and cases, are:

1—Reduction in total body weight from 3,000 to approximately 1,500 pounds; this permits the hauling per trip of 30 extra cases of beer weighing 50 pounds each without increasing gross vehicle weight, and in effect reduces hauling costs from 10 to 8 cents per case.



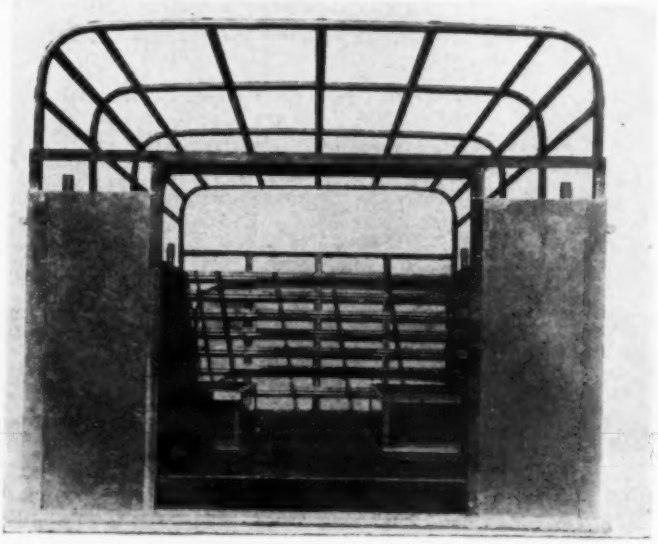
This skeleton view shows the framework, foundation and floor construction of the all-aluminum, "prairie schooner" type bodies described in this article.

2—Reduction of license fees by $18 per unit, totaling in this case $216 per year.

3—Further savings on tires and gasoline when trucks are running light or carrying empty barrels or cases.

4—Time-saving equivalent to one extra trip a day, and the ease and economy of removing the lightweight bodies for servicing either the truck or the body.

Operating economies were, of course, the prime consideration in the adoption of aluminum for body material, but the fact that scrap aluminum at current quotations is worth 10 cents a pound, giving each body a salvage value of approximately $150 at the end of its usefulness, was an important factor in favor of this lighter-weight material.

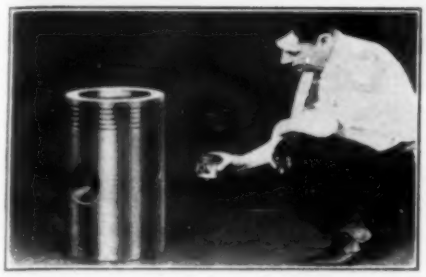


This is the rear view, showing the interior of the all-aluminum brewery truck bodies. Notice the wheelhousings, which are of exact beer-case size, to facilitate stacking.

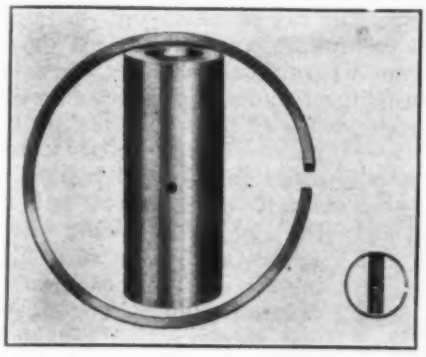
Stroh's aluminum bodies are finished in red, surmounted by permanent dark-brown tarpaulin coverings—a combination which not only contributes to weight reduction but at the same time preserves the traditional appearance of a brewery truck. Brewers and others interested in beer delivery have concurred with Stroh officials that in appearance, and arrangement as well as lightness, this type of construction closely approaches the ideal equipment for the average brewery in the servicing of local customers, it is said.

Although the original cost of aluminum bodies is nearly double that of conventional construction, the savings in operating costs attributable to lighter weight will result in complete amortization of the in-

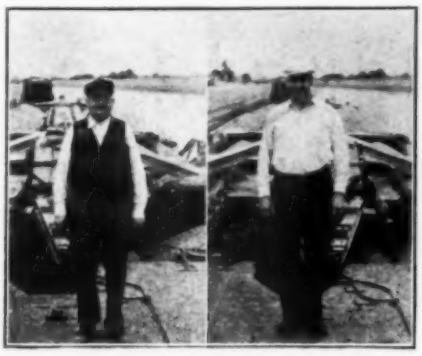
(*Please turn to page* 46)



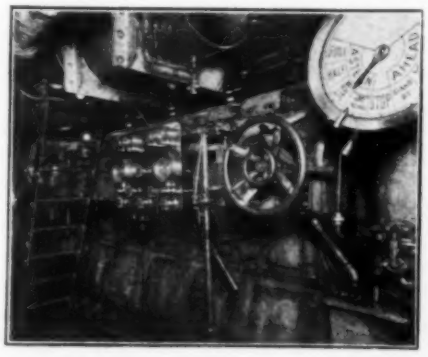
GIANT PISTONS of the lake freighter, "Material Service," were freed in a few hours' time by Graph-O-Lyte. Here is one of the Diesel pistons contrasted with a motor car piston.



THE IMMENSE SIZE of the Diesel engines conditioned by Graph-O-Lyte is shown by this photograph showing the comparative size of piston rings and wrist pins of one of the overhauled engines and a modern automobile motor.



ENTHUSIASTIC over Graph-O-Lyte's amazing performance are Captain Brown and Chief Engineer Johnson, of the motorized barge, "Material Service." Their skepticism was quickly turned into hearty endorsement.



A STIFF TEST for Graph-O-Lyte Motor Conditioner were the three marine Diesels on the lake freighter, "Material Service." Here is a part of the engine room.

GRAPH-O-LYTE'S SUCCESSFUL RECORD IN "BREAKING IN" BIG DIESEL ENGINES IS—

Proof

THAT MOTOR CONDITIONER WILL WORK ANYWHERE.....

"SHOW us what Graph-O-Lyte Motor Conditioner can do!" said skeptical fleet owners. "Prove it in a Diesel engine. If it works there, it will work anywhere."

So—we looked for the toughest "breaking in" job—and found three giant Diesel motors that were being overhauled on the big lake freighter, "Material Service." These huge engines were quickly "run in" for heavy duty service with the same proportion of Graph-O-Lyte Motor Conditioner that is recommended for new or overhauled automobile engines.

Cools Bearings; Saves Oil

"All motors were freed up in a few hours' time," writes the Leathem Smith-Putnam Navigation Co., of Chicago, owners of the $500,000 ship. "We ran into no scuffing or seizing of pistons or liners. All bearings are running unusually cool, and we are experiencing quite a saving in both lubricating and fuel oil.

"We want to continue the use of Graph-O-Lyte. It is one of the best investments we have ever made."

Ask About the Trial Offer—Now!

Graph-O-Lyte Motor Conditioner ends the danger of the "breaking in" period. It permits a new or overhauled motor to be put into heavy duty service even on the first day. It is guaranteed to prevent scored cylinder walls, burned out bearings, stuck rings, scored wrist pins, and other mechanical troubles that often result from driver-carelessness. Send the coupon today for details of the trial offer plan. Find out how Graph-O-Lyte can protect your new or overhauled motors during the "breaking in" period and save you time and expense. Grapholyte Mfg. Co., Evansville, Ind.

Graph-o-lyte

MOTOR CONDITIONER

SEND THIS COUPON TODAY **FOR COMPLETE DETAILS OF PERFORMANCE GUARANTEE**

Date ....., 1934

GRAPHOLYTE MFG. CO.
Evansville, Indiana

Gentlemen: Please send us complete details of the "Performance Guarantee" on GRAPH-O-LYTE Motor Conditioner.

Company ..... By .....

Street Address .....

City ..... State .....

Size of Fleet ..... Average Daily Mileage .....

☐ Check here if you want one (1) gallon of GRAPH-O-LYTE Motor Conditioner shipped for trial use.

Say "I saw it in FLEET OWNER"—It Helps!

Two Savings *from the* Scrap-Pile

•

Progressive Bus Operator Fabricates Ingenious Grinder, Using Old Parts from the Scrap-Pile • Manifolds Also Salvaged

A NICE new duplex grinding wheel machine recently appeared in the shop of a large city bus transportation company, and yet the only intimation which the purchasing department had that a new item of equipment had been installed was an order for a short length of leather belting! This illustrates most effectively what can be accomplished through the application of ingenuity and the oxy-acetylene process in a progressive shop.

A glance at the accompanying illustration shows this grinder. The bases and upright supports are made from two parts of a standard make of bus differential and a rear axle housing—all scrap material. The differential case and rear axle housing which are across the top of the grinding outfit are from another type of truck long since relegated to the graveyard.

The shaft that passes through this housing and on which the grinding wheels are fastened is what is known as a "spring hanger and fender support" which is a part that comes from another type of bus. It is a long steel shaft that extends across the bus supporting spring shackles and fenders.

The grinding wheels were salvaged from the street car department where they had become too small to be of use. The guards are made from brake drums with additional flat pieces cut and welded to the outside. The pulley on the center of the shaft is an old scrap pulley of questionable ancestry salvaged from the truck scrap heap.

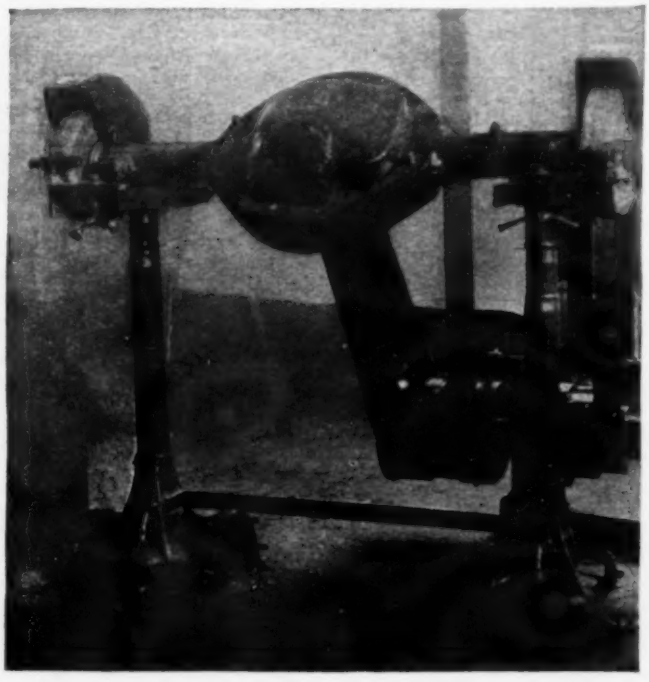
By placing the grinder adjacent to the drill press, the necessity of buying another motor was eliminated. A clutch drum from an old bus was joined with a butt type weld to the idler pulley of the drill press drive and the belt shifter of the drill press is used to start or stop the grinder, the only disadvantage being that both units cannot be used at the same time.

The whole job is completely assembled by oxy-acetylene welding except where it is necessary to have bolts to loosen for adjustment and for this arms were bronze-welded to opposite sides of nuts to make wing nuts. Work rests were made from scrap material and it can be observed that the adjusting wing set screws are made by welding cap screws to the heads of larger bolts. Both high-test steel welding rod and the new all-purpose bronze welding rod were used completely throughout the job.

The interesting feature of the whole job is the fact that the only part for the whole machine that had to be purchased was the leather power belt. Everything from top to bottom in the whole machine except the power belt consists of worn-out or scrap motor bus parts which were worn beyond any possibility of salvage.

This is one of the most interesting features of the maintenance shop of this public utility company. Nothing is thrown away or scrapped that can be possibly used in any other way, and the blowpipe is used to a large extent for this type of work.

The various parts that are reclaimed in this manner are too numerous to mention here. Suffice it to say that cylinder blocks, transmission and axle housings, water-pump housings and shafts, manifolds, etc., are but a few of the every-day jobs. Actual figures can be given that would actually cry out in rebellion against the sometimes prevalent practice of scrapping a unit merely because it is cracked or broken.



Above is shown the home-made grinder and buffer described in this article. The photograph below shows a mechanic salvaging a broken exhaust manifold flange—a routine operation, to be sure. These two instances are typical of the salvage work being done by progressive operators.

Don't Put It Off Another Day!

You're paying for an ECCENTRIC Grinder, why not have it?

In trying to grind valve seats of any metal from cast iron to stellite without an ECCENTRIC Grinder, you may be paying for this type of grinder many times over in inefficient performance due to faulty or inaccurate seats, loss of time or excessive grinding wheel wear. Why put off having this economical precision Grinder another day? Its savings make it an investment, not an expense.

The Only Factory-Adopted Seat Grinding Method

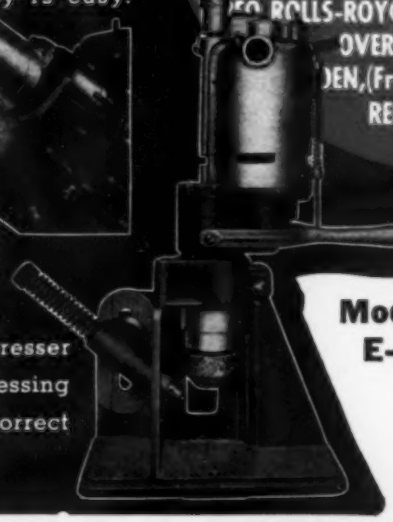
ECCENTRIC Grinding is the only method universally adopted by the factories for their production. Also adopted by thousands of fleets, dealers, and independent service shops for grinding seats of any hardness from cast iron to hardest stellite, and of surface, in-head, or recessed design. ECCENTRIC grinding is faster and more accurate; more economical too. Grinding wheels wear longer, are less subject to breakage, and require dressing far less often because the single point contact of the wheel on the seat permits the grindings to be dispersed rather than imbedded in the wheel.

Above: Grinding seats of surface type in six cylinder motor. Right: Grinding in-head or countersunk type seats.

HALL *ECCENTRIC* VALVE SEAT GRINDER ADOPTED BY.....

ALLIS-CHALMERS, AUTOCAR, BRIGGS-STRATTON, DE SOTO, CHRYSLER, CONTINENTAL, CURTISS-WRIGHT, FORD, G. M. C. TRUCK, HUG TRUCK, INTERNATIONAL TRUCK, [illegible]L-SCOTT, LINCOLN, MASSEY-HARRIS, PLYMOUTH, [illegible] ROLLS-ROYCE, STUDEBAKER, WHITE TRUCK, [illegible] OVERLAND, DAIMLER-BENZ, (Germany) [illegible]DEN, (France) LEYLAND, (England) RENAULT, (France)

Below: Grinding seats in V-8 motor to production accuracy is easy.



Right: Grinder comes with Diamond Dresser Stand for dressing Wheels to correct angle.

Model E-S

Ask the HALL Jobber for a Demonstration

Don't wait another day before deciding to buy an ECCENTRIC Valve Seat Grinder. Ask your HALL Jobber to write the factory today for a demonstration and complete information on how reasonably you can secure the ECCENTRIC Grinder Set that fits your requirements.

Hall Manufacturing Company
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HALL ECCENTRIC Valve Seat Grinder

Synthetic Enamels for Passenger Cars?

By H. Clay Fischer,
Editor, FLEET OWNER

Can Less Expensive and Equally Satisfactory Repaint Jobs Be Done With Synthetics on Passenger Cars? Some Operators Think So.

LAST month we attempted to explain the characteristics of the various synthetic enamels which many fleet operators are utilizing for truck, bus and commercial vehicle refinishing. The response to this article was very gratifying, many fleet operators having written in for copies of literature on this important subject. (If you have not as yet done so, it's not too late.)

More recently our attention has been called to the use of synthetic enamels for passenger car refinishing, particularly where the vehicle will be exposed to heavy-duty operation, where a first-class lacquer job is not required, or where a less expensive finish is desired.

It has been established that the average garage man, doing the work for profit (on your car and mine), can refinish a popular-priced passenger car, with a 2-coat synthetic enamel job at a price of $25.00, *and make a profit* out of the transaction. Such a job, they tell us, will stand up well for at least 18 months, two years or even longer. If the garage man can make a profit on a job of this kind at $25.00, including labor, material and overhead, it would seem that the fleet operator, doing such work in his own shop, could do the job considerably inside of this figure, particularly if the old finish does not require much going over. Much depends, of course, upon the condition of the old finish and the amount of work necessary *before* the application of the new enamel. Some time will be saved, too, by the use of synthetics, inasmuch as the rubbing or polishing operation (after repainting) will not be necessary.

Another economy that could be effected, consists in finishing both the body and the fenders in the same color. This seems to be the latest trend in passenger car practice and it might not be a bad idea to follow it out in refinishing. Besides eliminating the changing of guns and the use of two different colors, it does away with a great deal of time-consuming masking work.

If, on the other hand, your color scheme calls for the use of two colors and you can't "get away with it" with one color, you can still eliminate the masking operation by doing a brush job on the fenders, splash apron, etc., As we told you last month, many synthetics can be brushed without difficulty and others can be made to do so by the addition of retarders, etc. Or, you can invest in a quantity of the special brushing grades, where available.

One of the economies that can be effected in refinishing with any kind of material, is to paint the entire body and fenders all in one color. You will not only save money by eliminating a lot of time-consuming masking work, but will be right in style, too, since most passenger cars of present production are finished that way.

As on commercial vehicles, the use of a special synthetic under-coat is recommended, (or even a lacquer under-coating material), although in many cases synthetic enamels can be applied directly over the old finish without any undercoating. The old finish should be carefully wet-sanded and should be free from cracks, grease, dirt and other foreign matter. Particular attention should be paid to be sure that there is no wax left on the old finish. The best solvent is none too good for this purpose. Many recommend the use of high test gasoline for cleaning up. Real "high test" gas is difficult to procure, as a rule, and many labor under the mistaken idea that "premium" gas is high test, which is not necessarily the case.

Gasoline does not always evaporate "clean" and quite frequently on drying it leaves traces of an oily residue. Then, too, the gasoline used in the average shop is often handled in containers that have previously held oil. An oily film on the surface will prevent adhesion of almost any finishing material, and it is for this reason that the writer, personally, is not in favor of gasoline for this purpose. Any high grade solvent (not a lacquer solvent) should be preferred for cleaning up the old finish. Get one that evaporates fast, leaves no oily residue and is non-inflammable. Various manufacturers are producing solvents of this kind. Gasoline, also, will attack synthetic enamels until they are dry and hard, and for this reason it is not recommended for wet-sanding synthetic or oil undercoats. If in doubt, water-sanding seems to be a good procedure.

We shall not try to set up any arbitrary refinishing schedules for passenger car work, as it will be best to follow the instructions applying to the particular product which you are using. We will but touch the subject briefly. Since synthetics have a high solid

(*Please turn to page* 46)

FIVE OF PURITY STORES' CUMMINS DIESEL POWERED TRUCKS

CUMMINS Diesel Engines are the product of fourteen years manufacturing experience in a general line of Diesel Engines.

Purity Stores of San Francisco bought their first Cummins Diesel in 1932. After over three years of experience they say "We have proved that in our hauling your Diesel will do everything that a gasoline motor can do, do it easier and better, and at one-quarter of the fuel cost and that is why they have bought nothing but Cummins Diesels since that time."

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Diesel Engine Sales and Service Corp.,
1329 S. W. Morrison Street,
Portland, Oregon.

Diesel Motor Sales & Service Corp.
2331 East Ninth Street,
Los Angeles, California.

Fleet Equipment Manufacturing Co.,
7510 Washington Avenue,
St. Louis, Missouri.

Fresno Motor Sales,
1333 Van Ness Avenue,
Fresno, California.

Gordon Motor Parts, Inc.,
30 Joseph Avenue,
Rochester, New York.

Mid-Continent Supply Company,
Holmes Building,
Fort Worth, Texas.

Mid-Continent Supply Company,
Houston, Texas.

Mid-Continent Supply Company,
Philtower Building,
Tulsa, Oklahoma.

The von Hamm-Young Co., Ltd.
Honolulu, Hawaii.

The von Hamm-Young Co., Ltd.
Kapaa, Kauai, Hawaii.

The von Hamm-Young Co., Ltd.
Wailuka Maui, Hawaii.

The von Hamm-Young Co., Ltd.
Hilo, Hawaii.

H. S. Watson Company,
525 Fourth Street,
San Francisco, California.

Manufacturers Using Cummins Diesel Engines:

FOUR WHEEL DRIVE AUTO COMPANY,
CLINTONVILLE, WISCONSIN

KENWORTH MOTOR TRUCK CORPORATION,
SEATTLE, WASHINGTON

KLEIBER MOTOR COMPANY
SAN FRANCISCO, CALIFORNIA

LINN MANUFACTURING CORPORATION,
MORRIS, NEW YORK

ROBT. GOTFREDSON TRUCK COMPANY
DETROIT, MICHIGAN

STERLING MOTOR TRUCK COMPANY,
MILWAUKEE, WISCONSIN

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CUMMINS DIESEL ENGINES

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Say "I saw it in FLEET OWNER"—It Helps!

Analyzing Electrical System Failures

What Happens When Ignition Coils and Condensers Are Improperly Installed, Wrongly Located or Roughly Handled

By M. Mallory,
(*Mallory Electric Corporation*)

THE location of a coil is very important. If a coil is installed where it can collect moisture, grease or dirt, even though the resistance and distance is great between the primary and secondary terminals of the coil, there is bound to be trouble. High resistance generally develops in the secondary circuit, due to burning away of spark plug electrodes, loose wires in the distributor cap, spark plug wires dropping out of the distributor cap, increased gap between the distributor arm and distributor segment, or the wire making a poor contact in the center of the distributor and secondary terminal of the coil. These resistances are higher than the moisture-coated surface between the secondary and primary terminals. Consequently, the spark will travel over the surface between these two terminals, destroying the insulation. See Fig. 1. Manufacturers have done everything to overcome this, and are now using arc-proof material. This material will not carbon-track, but, if the spark travels across it long enough, it will simply burn up. The coil does not need to be in the rain. Steam from the engine or constant dampness will weaken the insulation between these two points. Distance or surface resistance between the secondary and primary terminals does not mean much if there is moisture between them.

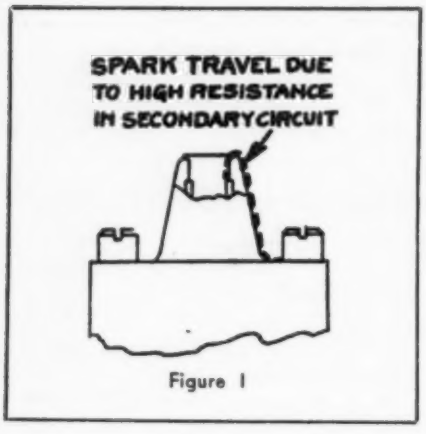

Figure 1

Manufacturers have had coils returned as defective, that were actually covered with mud, proving they were installed in the wrong location. It might be thought that the location was all right for the replacement coil, because the vehicle manufacturer put the old coil there. Perhaps, moisture, dirt or grease caused the old coil to fail. Manufacturers of motor cars make mistakes. In fact, we all do. They may not be termed as mistakes, but we learn as we go. If we did not, we would probably still be driving 1910 models.

The above difficulties seem to develop more on trucks and buses than on pleasure cars. This, probably, is due to the fact that these vehicles are always running, regardless of weather conditions. In many cases, they are in service day and night. Therefore, when installing coils on buses, the location is very important if long life is expected. See Fig. 2. This coil is installed in a dry place. It might be a little more trouble to install this coil inside of the cab on the dash, but not nearly as much trouble as a tie-up on the road would cause. It is simply a case of doing the right thing at the beginning.

A coil that produces a hot spark and high voltage, which is required for easy starting and better engine operation, will cause more burning than a coil with a weak spark and low voltage. Some coils are so weak that the spark will not jump across from the secondary to the primary terminal. If it does, there is not enough heat to cause any damage. Of course, with this kind of a spark, starting and performance of the engine would not be satisfactory.

In many cases, the condensation under the hood will short-circuit the spark plugs across the porcelain. In fact, this happens hundreds of times a year on most automobiles, especially in damp weather. The owners know that it is sometimes difficult to get the car started. They can hear the spark jump across the plugs. Of course, when they get the engine started, the plugs will get hot and dry the moisture. A spark plug will not become defective due to moisture getting on it, because it has a porcelain insulator which will not burn or track, and, after the engine has run for a short time, this porcelain will become sufficiently hot to dry what moisture may have collected on it.

The question might be asked as to why manufacturers do not use porcelain for the coil cases and tops instead of bakelite. This has been attempted, but it is not practical from a manufacturing stand-

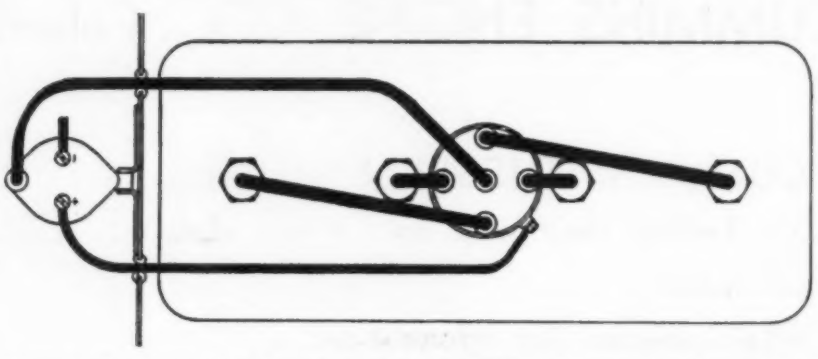
Figure 2—The proper place for coil installation is INSIDE of the cowl, as shown above, and not out in front of the engine, where it can pick up grease and mud.

All 4 Endorse
POWER PROVER SERVICE

. . . for gasolene savings up to 30%, increased power and lowered maintenance costs. Read what they say. What the POWER PROVER did for them, it will also do for you.

SAYS EXECUTIVE: "By reducing my fleet's gasolene and oil consumption, the Power Prover cuts down trucking costs. That shows up on the profit sheet. I also notice savings in repairs and lower maintenance costs!"

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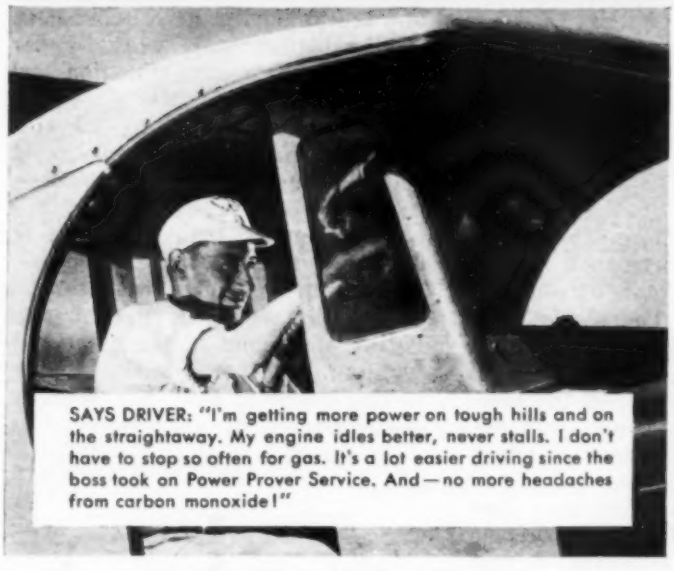

SAYS DRIVER: "I'm getting more power on tough hills and on the straightaway. My engine idles better, never stalls. I don't have to stop so often for gas. It's a lot easier driving since the boss took on Power Prover Service. And—no more headaches from carbon monoxide!"

SAYS PRIVATE CAR OWNER: "I thought my engine was fine. I was wrong. The Power Prover showed it was only 60% efficient. Now, my gas and oil costs are way down, my car's pep and power way up. I'm going to have my car Power Proved every three months—to be sure I keep that smooth, powerful performance!"

What these men say is the story told by 5000 fleet owners and many thousands of private car drivers. It was proved conclusively to them that poorly adjusted motors waste gasolene . . . waste power . . . are more costly to operate.

Cities Service Power Prover Motor Testing and Adjusting Service includes three distinct steps . . . (1) an analysis of exhaust gases; (2) a comprehensive 23-step testing and adjusting routine; (3) use of exclusive, patented Cities Service Tuning Tools and Precision Instruments.

These services cut down gasolene and oil costs as much as 30%—cut down maintenance costs—cut down overhaul and repair jobs—and *add* powerful performance—add truck-working hours—add profits.

Learn how Power Prover Service can, at trifling cost, help you cut expenses just as it has for others. Mail convenient coupon today.

NOW . . . *in refinery-sealed cans*

Two *great* oils . . . CITIES SERVICE MOTOR OIL and KOOLMOTOR OIL. One and five quart sizes. Your guarantee of oil as fresh, clean and pure as the day it left the refinery. Also full measure of the correct grade. Ask for these great oils in cans.

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PRACTICAL HINTS *on* COILS *and* CONDENSERS *(Continued)*

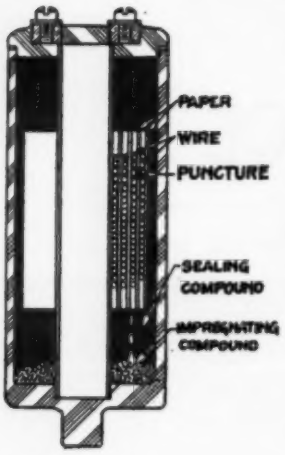


Figure 3

Figure 4

point. If it were used, the spark traveling across it would not affect the insulation. However, the conditions are entirely different in a spark plug, because a spark plug will heat and dry off; whereas a porcelain top on a coil would not, because it is not subjected to the same heat as the spark plug. In fact, a coil cannot be subjected to the same heat as the spark plug, as the coil windings and insulating compound would not stand this heat.

The secondary winding is the most delicate part of the coil. It is built up in this fashion: One layer of wire, consisting of many turns, and several layers of paper and another layer of wire. The average coil consists of approximately 50 layers of wire and 50 layers of paper.

The voltage is high between the layers of wire in the secondary, and it is for this reason the paper is placed between the layers to prevent punctures or breakdowns from one layer to another. The insulation of this paper is strengthened by impregnating it with a compound generally consisting of paraffin and rosin. The secondary windings are placed into a vacuum tank, which withdraws the moisture and draws in the insulating compound. To make a solid impregnation, the compound must not have a melting point much over 160° Fahr.

If the coil is installed on an engine, there is bound to be some electrical heat dissipated from the primary winding into the secondary. This heat, plus the engine heat or under-hood temperature, in many cases especially on the large bus engines, reaches a point much higher than 160°. This will cause the impregnating compound to run out of the secondary winding; thereby greatly reducing the dielectric strength of the insulation between the secondary layers. The result: A puncture through the paper from one layer to the other. See Fig. 3. The wax or impregnating compound has paraffin in it, which dissolves the sealing compound with which the coil is sealed in the case. This compound being in a flowing condition is liable to run out of the coil unless it is airtight. Even though it does not run out, it will allow the coil to shake, due to the engine vibration, which soon causes failure. Under-hood temperatures, plus electrical heat, is another reason why coils should be installed as shown in Fig. 2.

The question might arise why manufacturers do not use an impregnating compound sufficient-

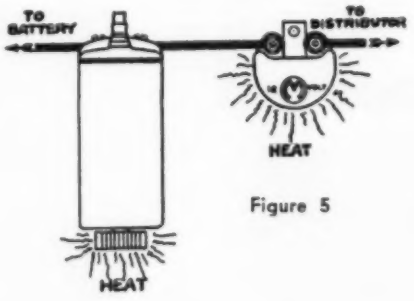


Figure 5

ly high so that engine heat and electrical heat will not melt it. We wish we could or knew of someone else who could. There are compounds of a high melting point. For example; the compound with which we seal the coil in the case. However, this compound will not flow into the secondary winding by the vacuum process.

At one time manufacturers used a varnished winding to overcome heat difficulties. However, a vacuum process could not be used, as the varnish would not flow into the secondary. A varnished paper was used and the ends of the winding were sealed with varnish, dipping the windings several times and baking them several times, but this was not successful, due to the fact that it was rather difficult to get the moisture out of the winding without the vacuum treatment.

In many cases, the coil is not properly connected, or it is connected into the circuit where there is high resistance in the secondary circuit, as previously explained. We have found cases where the wire was not placed properly in the secondary terminals of the coil. It was just pushed into the end of the terminal. Naturally, there would be an open circuit at this point. This terminal should be taken apart, the insulation stripped off the wire and the screw tightened down against the wire on the inside. See Fig. 4.

The primary connection on the coil should always have the positive wire connected to the terminal marked "positive" on the coil. For example; if the negative side of the battery is grounded to the car, the wire leading from the ignition switch is positive and should be connected to terminal marked "positive" on the coil. If the positive side of the battery is grounded to the car, the wire leading from the ignition switch is negative and should be connected to terminal marked "negative" on the coil.

The 12-volt coil has been the most difficult problem for all manufacturers to solve, due to the fact most of them are used on buses and trucks having high under-hood temperatures, and work under moisture conditions, vibration and constant service. Manufacturers have done everything to lick this problem from building air-cooled coils to oil-cooled ones. However, there will still be trouble if the coil is subjected to moisture or if the under-hood temperature, plus electrical heat, raises to a point that will melt the impregnating compound in the secondary winding.

The electrical heat dissipated in the windings of a 12-volt coil is

(Please turn to page 49)

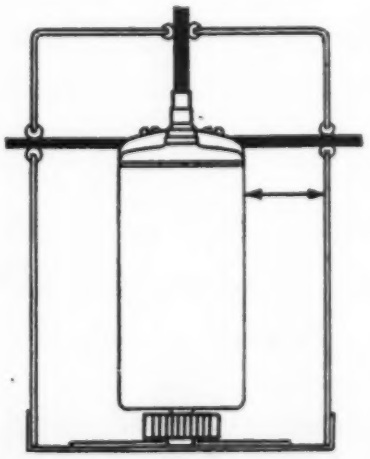


Figure 6

Du Pont announces

TWO-WAY* RADIATOR PROTECTION

for fleet owners:

ZERONE

REG U.S. PAT. OFF.

Anti-Rust ANTI-FREEZE

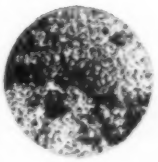
EVERY OWNER of a fleet of cars, trucks, or busses will be interested in this important announcement: du Pont has perfected a product that not only protects car-radiators against freezing at *any* temperature, but also protects against rusting and corrosion the year round — yet its protection costs less than ordinary one-way anti-freeze preparations. This *modern* product, developed and perfected in the laboratories of du Pont, is called ZERONE. Five additional features help to make ZERONE one of the "best buys" on the market. Here are all seven points, briefly summed up. Remember them when you're ready to order anti-freeze for your fleet: 1—ZERONE protects car-radiators against freezing at *any* temperature. 2—ZERONE protects car-radiators against rusting the year round. 3—ZERONE does not readily evaporate. 4—The low first cost of ZERONE and its concentration make it an economical investment in protection. 5—ZERONE has no unpleasant odor. 6—ZERONE maintains cooling-plant efficiency. 7—ZERONE is manufactured and sponsored by du Pont—E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware.

These photomicrographs show how **ZERONE** *actually prevents radiator corrosion*

ORDINARY ANTI-FREEZE

A few minutes after filling

Samples taken from radiators showing excessive quantity of rust (corrosion) present



7 weeks later

ZERONE *ANTI-RUST* ANTI-FREEZE

A few minutes after filling

Samples taken from radiators showing nearly total absence of rust (corrosion)

7 weeks later

Grinding Jobs You Can Do *in Your* Lathe

By John H. Sheehan

ON many occasions there will come up in the average fleet maintenance shop the necessity for a grinding job. Some jobs require grinding, where all other methods would be more-or-less makeshift.

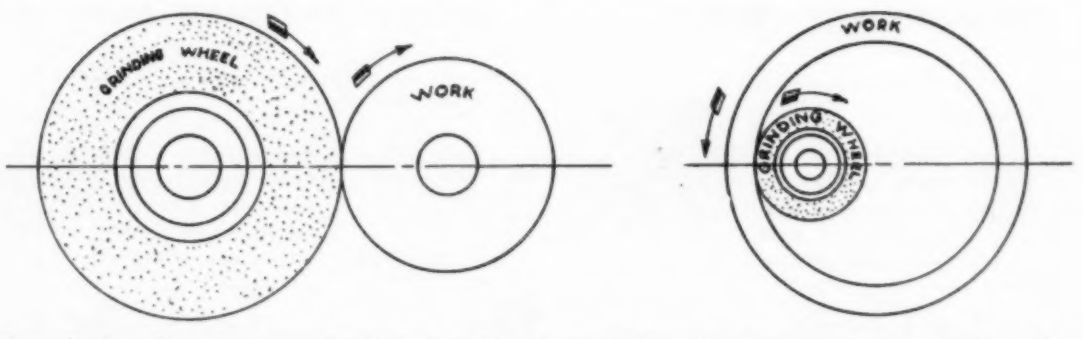
For example, it may be that a hardened bushing needs a few thousandths ground off. Or again, it may be that the armature core of a starting motor needs grinding down to provide for proper clearance between the core and field poles of the motor.

Or, what is more common, some of the tools used on servicing jobs might need touching up—reamers, valve-seat counterbores, a valve-seat lapping hone, a tap. All these, of course, are grinding jobs. They may be sent outide for regrinding. But this method is, as you know, sometimes more expensive. Besides, when it is customary to farm out the tools for sharpening, there is a tendency to neglect them, to make them "do" for a longer period, with a certain sacrifice of good work because of this neglect.

The question then is, "How to grind in the average shop?" All of the grinding jobs mentioned and several more can be handled by any shop having a good lathe—plus a good electric grinding attachment. Then it is merely a matter of using a bit of ingenuity in applying the grinder to various jobs, for a grinder mounted on the compound rest of a lathe very closely approaches a universal grinding machine.

Some grinding operations are of the simpler sort—straight grinding. In this category falls such jobs as grinding bushings, pistons and hardened shafts. These will be explained briefly in the following paragraphs.

Before doing any grinding, *cover the lathe bed with a cloth* to protect it from flying grit of the grinding wheel. (In the pictures shown here, the lathe bed has been left uncovered to give the reader a better view.) Then, after clamping the grinding attachment to the compound rest of the lathe, the *grinding wheel should be carefully trued* so that it will produce an accurate surface and a smooth finish. There are diamond dressers available with various types of holders for this job. True the wheel by using the power carriage feed to pass it across the diamond. Having a



These drawings show the proper direction of rotation of the grinding wheel and work. For external grinding, run the grinding wheel and work in the same direction. For internal grinding, run the wheel and work in opposite directions

SKF EQUIPPED
BUILT BY
STERLING MOTOR TRUCK COMPANY

STERLING TRUCK USES DEPENDABLE SKF ▼ ▼ ▼ BEARINGS

IT'S NO MERE CHANCE that you find SKF Self-Aligning Ball Bearings on the propeller shaft of this Sterling truck. They were built for it. The engineers who laid in the bearing design *knew* that SKF would take the punishment of shaft deflections caused by weaving and deflection of the frame. They knew that rolling self-alignment within the bearings is highly desirable because the freedom of operation is not affected by the deflection of the shaft.

Bearing-wise engineers *insist* upon getting the performance . . . the dependability . . . the real economy that only SKF can give to this application. It's no place, DEPEND UPON IT, for anything *less* than an SKF.

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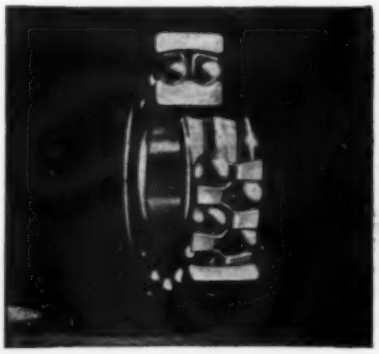
● *You may buy a bearing as a bargain but try and get a bargain out of using it, for nothing is apt to cost so much as a bearing that cost so little*

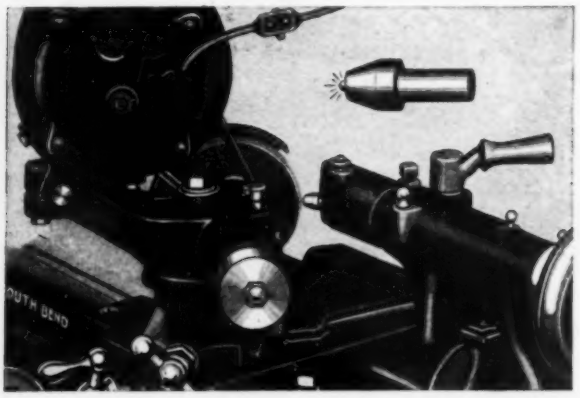


SKF INDUSTRIES, INC., FRONT ST. and ERIE AVE., PHILADELPHIA, PA.

SKF
Ball and Roller Bearings

Say "I saw it in FLEET OWNER"—It Helps!

A "HOW-TO-DO-IT" ARTICLE *(Continued)*

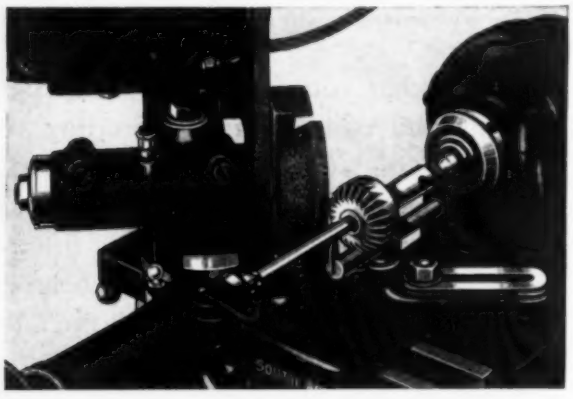


True the grinding wheel with a diamond dresser, as shown here—and keep it true.

wheel true and keeping it true insures accurate grinding work.

To grind a hardened bushing, first *clean the bushing* thoroughly to remove all loose scale on the outside and inside. Then *press the bushing on a well-oiled mandrel* and mount it between centers in the lathe. The center holes in the mandrel should be clean and oiled before mounting, of course, so that it will revolve freely between centers in the lathe.

When ready to grind, start the grinder motor and the lathe. In grinding the outside of a bushing and in all external grinding, the *wheel and work rotate in the same direction.* (When grinding internally, the wheel and work rotate in opposite directions.) See illustrations accompanying this article. The lathe spindle



Sharpening a valve seat reamer with a "cup" wheel. This also can be done with a straight wheel.

should be run at medium back-geared speed. When grinding work of large diameter, the slow back-geared speed should be used.

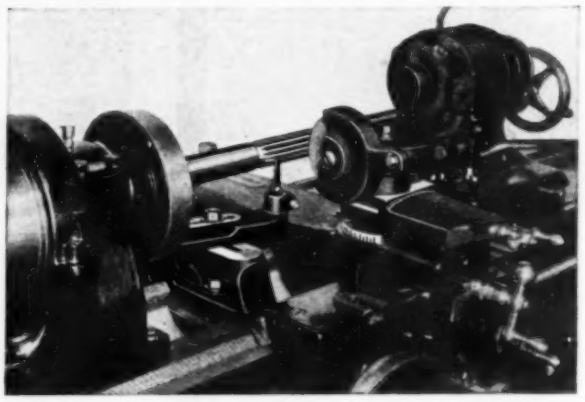
The carriage-feed of the lathe should be about 1/32 inch per revolution of the lathe spindle. Coarser feeds may be used when the finish is not important and when taking a roughing cut. Don't attempt to remove too much stock in one cut as this overheats the work and may cause warping. It is best practice to adjust the cross-feed of the lathe for a cut of one to two thousandths. Then take the cut by using the power carriage-feed.

When the bushing has been ground to the proper size and finish, remove it from the mandrel and oil it to prevent rusting, or to facilitate its installation in the desired place.

The grinding of a hardened shaft is done in the same manner as a bushing except that the shaft itself is swung between centers in the lathe.

Semi-machined pistons may be finished to size either by machining them in the lathe or by grinding them. Grinding them is a bit different from grinding shafts or bushings. The set-up in the lathe for grinding a piston is the same as for machining, except that a grinder is used instead of a turning tool. In this case a piston adapter and special driver are used to mount and drive the work.

Grinding the piston skirt may require either straight or taper grinding and the mechanic should be guided by the characteristics of the original piston used. The piston ring lands, however, should be finished to the varying diameters, in conformity with the instructions supplied by the piston manufacturer. Any good mechanic need not be afraid to tackle the job. If he is, he should try it out first on an old piston.



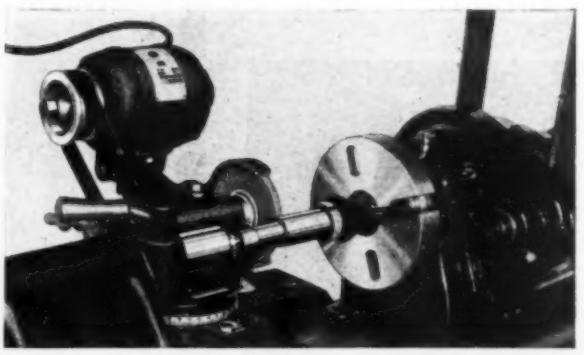
Straight reamers can be sharpened easily in the lathe, using the grinding attachment.

Grinding valves of any type in the shop lathe is a quick and efficient way of handling the job, if you do not have a special valve refacer for this purpose. Regardless of the degree of angle of the valve, the grinder attached to the compound rest of the lathe can be swiveled so that it will cut at a corresponding angle.

When doing this work in the lathe, the valve should be held in a regular hollow valve-chuck which grips the valve on the same section of the stem that fits the valve guide bushing. This holds it concentric with the lathe spindle, assuring an accurate face.

The operator should be particular to have the grinding wheel dressed first; then he will have no difficulty

(*Please turn to page* 49)



Grinding a hardened bushing by mounting it on a mandrel in the lathe.

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You want service which simplifies replacement problems and increases service miles. Fafnir takes care of both of these essential factors . . . First of all, the Fafnir line includes every type and size of ball bearing for every make of bus and truck. Stocks are carried within easy reach of practically all garages by Fafnir distributors. Have them carry your requirements and save in spare parts expense. You will find the Fafnir distributors more than willing to cooperate.

In quality of material and workmanship, Fafnir is second to none. With Fafnir Ball Bearings throughout your fleets the maximum of trouble-free mileage is assured, a fact to which an ever-increasing number of operators will testify.

Drop us a line. We will gladly give you all the facts . . . THE FAFNIR BEARING COMPANY, *New Britain, Conn.* Atlanta . . Chicago . . Cincinnati . . Dallas . . Kansas City . . Minneapolis . . New York . . Pittsburgh . . Portland . . San Francisco.

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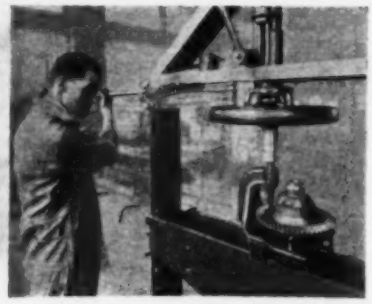


The TROUBLE SHOOTER

A department, devoted to correspondence from readers of FLEET OWNER. Any questions having to do with automotive service will be answered in this department. All properly signed inquiries will be replied to by mail and such of them as are believed to be of possible interest to other readers will be published in these columns.

Effect of Loads Upon Fuel Consumption?

Question: Having seen almost all types of questions in FLEET OWNER, *we have no doubt but that you can answer this one satisfactorily.*

Assuming all other factors—that is, speed, vehicle, route, weather conditions, etc.—unchanged, how much will the addition of weight affect gasoline consumption? To be specific, let us assume a vehicle weighing 10,000 *lbs. and consuming on a given route at a given speed, X gallons of gas per mile. What effect would the addition of* 1,000, 2,000 *and* 3,000 *lbs. to the total weight have upon gas consumption? It is assumed, of course, that these additional increments do not overload the vehicle.—K. L. C., Jamestown, N. Y.*

Answer: With a vehicle weighing 10,000 lbs., the loads of 1,000, 2,000 and 3,000 lbs. would be comparatively light. If the run were made on an absolutely level, flat road, with no stops, and little wind resistance, there would be *very little* difference in fuel consumption, we believe.

If, on the other hand, there were a great many stops along the route, if there were many grades to be climbed, and especially if some of the stops were made at the bottom of grades, before ascending, such as a red light at the bottom of a hill, there would be quite an appreciable difference in fuel consumption.

We shall not attempt to tell you just how much gas would be consumed, as we do not really believe that this information would do you any good. Rather, let us quote another authority on the subject. The following remarks come from an interview we have just had with Austin M. Wolf, well-known New York transportation engineer and member of the S.A.E. Here is what he offers on the subject:

"There absolutely *would* be a difference in gasoline consumption with variations in load, assuming that the route traversed would be of a varying nature, taking in grades as well as level stretches. It can be readily understood that variations of weight such as those given will require ascending grades in the lower gears. A grade that can *just* be made in high, will require the next lower speed with the addition of a 1,000-lb. load.

"The power required to propel a vehicle depends upon the rolling and air resistances according to the speed, and is also dependent upon the grade. Data and formulae for the above are available. Knowing the power required, one can check back on the horse-power, torque and fuel consumption curves of an engine at full and partial throttle openings, and the fuel consumption can be read off therefrom. This will give a theoretical but almost fully correct figure, since the variations of the road and dynamometer conditions would not be so great.

"It is conceivable that if runs were made entirely on the level, on a perfect road surface, that slight additions of load would not result in a perceptible difference in fuel consumption, as there are a number of variables that might bring about this condition. However, I believe that a weight difference of 1,000 lbs. *would* be perceptible.

"From the practical point of view, where the ideal level road exists over but a *very small* portion of the route, there certainy *would* be a difference in gasoline consumption. In all of the above, I am assuming that variables brought about by the personal handling of the vehicle, variations in wind, etc., are practically constant."

You May Not Believe It!

(But It's True)

THE FACT:

HEAVY OIL is of no value in reducing consumption in old and worn engines.

THE PROOF:

EXHAUSTIVE tests, made on the road, at the General Motors Proving Ground, in which a group of old and new engines were used, reveal this fact, according to H. C. Mougey, chief chemist of General Motors. By using oils of different viscosities on these old and new engines, it was proved very conclusively that variation in viscosities made considerable percentage difference in oil consumption in new engines. But with the old "loose" engines, very slight differences were found. These data claim that the use of heavy oil to reduce oil consumption and give better "seal" in old engines is of no value.

Your Printer Can Produce These Forms

Question: In last November's issue there appeared several forms for keeping the cost records of trucks. We are particularly interested in the Repair Order, appearing on page 14, and also the one on page 16. What quantities and at what prices can these forms be obtained; and from whom?—J. C., Kane, Pa.

Answer: Forms which appear in FLEET OWNER from time to time are for the most part *private* ones, which have been designed by the fleet operator with whose article they appear. As with all material that appears in this journal, they are copyrighted, but permission can be granted you to have your local printer make up a quantity of any of these for your own use,

NEW TRUCK TIRE PREVENTS BIG CAUSE OF SIDEWALL BREAKS

I'M SORRY, BOSS, BUT I HAD A FLAT IN THE COUNTRY AND COULDN'T MAKE DELIVERY ON SCHEDULE
IT'S ANOTHER SIDEWALL FAILURE
I'M THROUGH BUYING TIRES THAT FAIL LONG BEFORE THE TREAD IS WORN. I WANT YOU TO ORDER TRIPLE PROTECTED SILVERTOWNS FOR ALL OUR TRUCKS

Goodrich Invention Checks 80% of Premature Failures

DON'T let tire delays eat into your profits! Avoid premature truck tire failures which often cause expensive delays, high repair bills and danger to truck, driver and cargo. Sidewall breaks cause 80% of these premature failures!

So Goodrich built a tire with Triple Protection against this "Failure Zone." Made the sidewall just as strong as the rest of the tire. Built into the heart of the tire positive 3-way protection against unwarranted blow-outs.

Not until this amazing Goodrich invention was announced was it ever possible to buy a truck tire with this extra protection. Now you can add months and extra miles to the life of your truck tires!

TRIPLE PROTECTION IS FREE!

You pay nothing extra for this added protection. Goodrich Triple Protected Silvertowns cost not one penny more than other standard truck tires. Start saving now with these tires that laugh at the tough jobs! Get deliveries through on time. Avoid accidents and repair bills. Cut your tire costs down to rock bottom. Phone your Goodrich truck tire dealer now.

FREE! Valuable Book

A copy of the Silvertown Safety Manual for Truck Operators is yours for the asking. How to cut accidents. How to win free Safety Awards. Save money. Write Dept. T-120, The B. F. Goodrich Company, Akron, Ohio.

MR. TRUCK OWNER—JUST LOOK AT THIS 3-WAY PROTECTION

1 **PLYFLEX**—a *new*, tough, sturdy rubber material with greater resistance to stretch. A layer of Plyflex in the sidewall distributes stresses and strains—prevents ply separation—checks local weakness.

2 **PLY-LOCK**—the new Goodrich way of *locking* the plies about the bead. Anchoring them in place. Positive protection against the short plies tearing loose above the bead.

3 **100% FULL-FLOATING CORD**—Each cord is surrounded by rubber. With ordinary cross-woven fabric, when the cords touch each other, they rub—get hot—break. In Silvertowns, there are no cross-cords. No friction.

Goodrich *Triple Protected* Silvertowns
FOR TRUCKS AND BUSES

Say "I saw it in FLEET OWNER"—It Helps!

TROUBLE SHOOTERS' DEPARTMENT (*Continued*)

excepting where the forms are copyrighted by the owners of same.

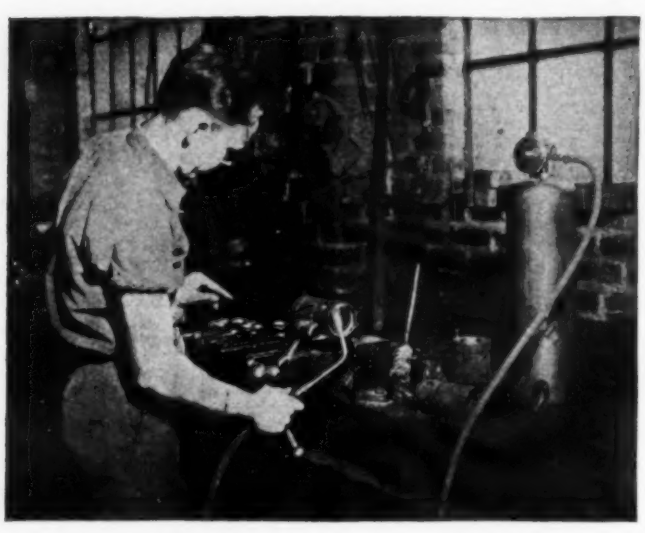
It seems to us that you could use these forms as *guides*, and have your own forms patterned after them. Undoubtedly there will be some changes or additions necessary, to adapt them to your own particular requirements. Why not get together with your printer and devise a set for your use? As a matter of fact, that's exactly the thought we have in mind, when reproducing these forms in FLEET OWNER. So that you will have the benefit of the "other fellow's" experience.

●

Air-Acetylene Torch for Tinning Bearings

AS a preliminary rebabbitting operation, the tinning of bearing housings is necessary, in order to insure a good bond between bearing and housing.

Many shops are doing this work with the aid of the air-acetylene torch, as shown in the illustration.



The outfit consists simply of a small tank of dissolved acetylene, (such as used to be popular for truck lighting), a pressure regulator, a length of hose and a torch handle, to which can be attached a varied assortment of tips for various work.

For this application, the operator first swabs the housing with acid, then, using the largest stem supplied with the outfit, he heats the inner surface and flows soldering rod onto it. This operation is, of course, a machine shop job. The same application, however, should apply to all shops which have occasion to recondition babbitt metal bearings or to make new ones. In other words, it is either a manufacturing or a repair operation, as the case may be.

●

Some Through the Bottom—Some Through the Top

Question: We are going to overhaul an old 1925 Hudson Six that has been converted into a light-car wrecker. Please give us the correct valve timing; also which is the correct way to remove the pistons, top or bottom?—C. H. L., Festus, Mo.

Answer: We are sending a diagram showing the correct way to replace or check the timing chain, so that your camshaft and valves will be in time. (This information will probably not be of general interest, so we won't reproduce it here.)

With reference to the pistons, Numbers 3 and 4 can be removed through the bottom. On all the others, it is necessary to remove the head, disconnect the rod bearings, push the pistons up so that the wrist-pins can be pushed out; then pull the pistons through the top and drop the rods through the bottom.

It is of course necessary first to remove the locking device from the wrist-pins, which can be done from the bottom. If the pins are difficult to push out, the pistons can be heated a bit with a torch, which should expand them sufficiently to release the pins.

●

This Job Uses Bendix 3-Shoe Brakes

Question: We have a 1927 Model "S" Packard passenger car, on which we relined the rear brakes with ¼" lining, but did not reline the front ones, as the lining appeared to be o. k.

We are now unable to get a good adjustment. The front brakes hold very well but the rear ones have little braking power when the pedal is about 2 inches from the floor. Continued pressure on the pedal will put it to the floor without changing the braking power. What would you suggest? Where did we slip up?—F. K., Brooklyn, N. Y.

Answer: This job uses Bendix 3-shoe brakes and we have no doubt that you failed to make correct adjustment of the anchor pins and that you have not properly centered the shoes within the drums.

To make it easy, we are sending you under separate cover a Brake Reliners' Manual, in which full instructions for this type of brake are given. By following it carefully, you should be able to correct your condition and get good brakes.

(EDITOR'S NOTE: *The manual which we sent to Mr. K. is a 124-page book that contains information on every system of braking. It is completely illustrated with drawings and photographs. Its pages are chock full of trouble shooting information, as it has been designed especially for the brake man. Should other fleet operators be desirous of getting a copy of this manual, we'll be glad to have one sent to you, free of charge, of course. A note to the Editor will bring a copy, through the courtesy of the copyright owners.—H. C. F.)*

●

Air Cleaner Hint for Chevrolet Trucks

A FEW complaints have been received, states *Chevrolet Service News*, regarding loss of power and poor gasoline economy on 1934 Chevrolet trucks.

Investigation has proven this to be caused by the screen and copper mesh in the air cleaner being pushed down toward the air intake on the carburetor, and improper installation of the air cleaner on the carburetor.

To correct this condition, remove the air cleaner from the carburetor, and push the heavy wire screen up with the thumbs so that it will be in a convex position. This will allow the proper amount of air to enter the carburetor.

Another point to check is the position of the air cleaner on the carburetor air horn. It is possible to set the air cleaner too far down on the air horn, which will also cause some restriction.

as WE GO to PRESS

(News of the Truck Industry)

Poxson, Triphagen Advanced by Reo

IMPORTANT advancement affecting the heads of the Reo Motor Car Company sales division were announced last month by Don E. Bates, president. Elijah G. Poxson is appointed president of the Reo Sales Corporation and its subsidiaries, a newly organized unit of the Company, and is succeeded as sales manager by C. A. Triphagen, who heretofore held the title of supervisor of sales. Both gentlemen have been associated with Reo for many years.

•

Stewart Offers New 2-Tonner

LAST month Stewart Motor Corporation, Buffalo, N. Y., announced a new lower-priced 2-ton truck. It is known as Model 47H and lists at $895 F. O. B. Buffalo. This chassis is furnished in wheelbases of 134, 145, 160, 176 and 190 inches, thus making it suitable for bodies up to 14 feet in length. The motor is a 6-cylinder job, featuring a removable block.

•

Commercial Body Code Approved

APPROVAL by National Recovery Administrator, Hugh S. Johnson, of a code of fair competition for the commercial vehicle body industry was announced, effective July 30th. The code will not be applicable to the repairing of commercial vehicle bodies by employees of the owners of such bodies; fleet operators, for instance.

•

N.A.C.C. May Be Renamed

MEMBERS of the National Automobile Chamber of Commerce are considering changing the name of their organization to include the word "manufacturers," which would be more descriptive of its composition and functions, according to Alfred Reeves, vice-president and general manager. No changes in the policies or by-laws are being contemplated.

•

Replaces Six Motors With Diesels

THE City and County of Honolulu, Hawaii, has recently installed six Cummins Diesel Engines in Packard Trucks which have been in operation since 1920. These six installations were made after a trial use of this type of engine for a period of eight months, the manufacturers state.

To Hold "Local" N. Y. Show

AT a meeting of the Board of Directors of the Automobile Merchants Association of New York, Inc., held last month, it was unanimously voted to hold, under its auspices, the 1935 New York Automobile Show, on January 5th to 12th inclusive. At a later date a Show Committee will be appointed.

•

Huge Truck Caravan Drive-Away

THE largest drive-away of Detroit-made motor trucks to leave that city this year departed a few weeks ago, when a caravan of 85 Dodge trucks of various types and sizes left the Dodge truck factory bound for Chicago. The trucks were piloted by a group of truck salesmen and dealers from the Chicago region who had attended a two-day sales session at the factory.

•

Permite Warehouse at Detroit

SERVICE on Permite Products, to all points in Michigan and Northern Ohio, is promised in the announcement of Aluminum Industries, Inc., of Cincinnati, that a new warehouse was opened on July 16th, at 477 Selden St., Detroit, Mich. This constitutes the eleventh in the Permite warehouse chain, it is stated.

•

The Latest in Garbage-Collection

HERE is one of the newest types of garbage-collection vehicles. It has recently been added to the equipment of the Sanitary District of the City of Indianapolis, Ind. The truck is a Marmon-Herrington Model A10-4, driving through all four wheels. It has a rated capacity of 1½ to 2 tons and is equipped with perhaps the latest type of garbage body, operated hydraulically by the truck's engine. At the rear is a loading bucket, which can be raised up to the top of the body and the contents deposited in the main compartment, which has a capacity of six cubic yards.

Weinhardt Now Reo Engineer

APPOINTMENT of R. A. Weinhardt as assistant chief engineer of both passenger car and truck divisions of the Reo Motor Car Company, is announced by Ray J. Fitness, chief engineer. Mr. Weinhardt has had a wide and varied engineering background in the automotive industry.

•

New Charter Drive Policy

A TRADE-IN allowance of $1.50 will be given on each old starter drive replaced by a Charter Drive, beginning August 1st, according to Burgess-Norton Mfg. Co., Geneva, Ill., the manufacturers. Billing through regular distributors, jobbers and service stations will be handled on the exchange basis, where old drives of any type are traded in, it is understood.

•

Lamp Prices Reduced

A REDUCTION averaging 13% in the list prices of four types of incandescent lamps has been announced by the General Electric Company and the Westinghouse Lamp Company. Lamps in 150, 200, 300 and 500-watt sizes are affected. Many fleet operators, using lamps of this type for garage and service station illumination, will be interested in the price reduction, no doubt.

•

New Folder on Gaskets

THE Fitzgerald Manufacturing Company announces a new folder, "Build Dependable Profits With These Dependable Gaskets." This booklet tells why increasing numbers of service men are installing Fitzgerald Gaskets. Copies may be secured by writing the Fitzgerald Company, Torrington, Conn. No obligation, of course.

•

Oxweld Oxygen Regulators Improved

THE Linde Air Products Company, 30 East 42nd Street, New York, N. Y., recently announced that an improved screen filter is now being incorporated in its Oxweld oxygen regulators. This improvement gives greater protection against foreign matter entering the regulator. Instead of using a flat screen across the inlet, a double, cone-shaped bronze screen has been developed. A cone of coarse metal screen fits inside one of finer mesh, and both are held in the inlet nipple by a newly developed locking screw.

WHAT DO YOU READ?

HERE'S a hand-picked assortment of literature that is offered to you entirely without obligation. We've even made it easy for you to get it. Fill in the coupon below, mail to the Editor, and let us do the work. We'll ask them to send it at once and not to bother you with salesmen, either.

181. **Are You Diesel-Minded?** Most operators are. Or at least they are anxious to watch the development and acceptance of Diesel engines, with one eye on the future. But first it would be well to understand the full principles of Diesel engines. We've run across an interesting book that illustrates and describes the type of Diesel engines which are now being used by truck operators. If you'd like a *free* copy of this book, Number 181 on our coupon below, will bring one to you.

●

182. **How to Get More Service From Your Truck Tires. More Miles for Less Money.** Either of these titles would be suitable for this latest tire maintenance manual, just called to our attention. It's just off the press and is full of valuable information on how to maintain and operate truck tires—how to lower your tire costs—how to get better tire service. Every commercial operator will find this manual of interest. It's *free* and can be obtained by mentioning Number 182 on our coupon below.

●

183. **Graphite as a Lubricant.** No doubt you've read the article on Graphited Lubricants in our March issue. Most everyone has, according to the number of letters on the subject we've received. And now we have to offer you a set of "technical bulletins" covering the uses of graphite in motor lubrication. Although they're called "technical bulletins" they're not *too* technical for the average fleet man to understand. They reveal quite a bit of information that will surprise most service men. Should you desire a *free* set, just mention Number 183 on the coupon.

184. **More Jack With Good Jacks.** For doing all kinds of lifting, up and down; also for engine installation, frame straightening, and all kinds of light press work, you'll find hydraulic jacks ideally suited. But don't say that you've no hydraulic jacks among your equipment; most everyone has a few at least. At any rate, it would be well to have some literature on hand covering hydraulic jacks. Interesting catalogs have been issued, and if you indicate your desires with Number 184 on the coupon below, we'll be glad to see that you get a copy, *without obligation.*

●

185. **How Much Do You Know?** Pretty nearly everyone thinks that he knows how to install cylinder head gaskets, and that there's nothing he can learn about the subject. A new folder entitled *"The Correct Installation of Gaskets"* provides an opportunity to check up your own ideas with those of folks who have been manufacturing gaskets for many years. By placing Number 185 on the coupon below, you may obtain a free copy of this folder. We'll bet our hat that you'll find at least *one* new idea in it that you never heard of before.

●

186. **Free Tune-Up Charts.** Here's some really useful data for you. It consists of a set of motor tune-up charts, designed to make motor tune-up fast, easy and accurate. Both passenger cars and trucks are covered, but not every make. Each chart gives data on spark plug gaps, breaker point settings, valve and ignition timing and carburetor adjustments. What could be more complete? What could be more useful around the shop? Where can they be obtained? Just include Number 186 on the coupon below. No cost or obligation whatever. Nothing to buy—*now, tomorrow or any time.*

●

187. **How Good Are Your Welders?** Here's an opportunity to check up on the boys in your shop who handle the welding torches. Or, if you do it yourself, you can see how good you are. It consists of a book entitled *"The Testing and Qualification of Welders"* and shows the right way and the wrong way to make all kinds of welds, joints, repairs and other tricks with the welding torch. Another booklet is entitled *"The Progress of Bronze-Welding."* This gives practical information about welding with that rod of many uses—bronze rod. Both of these booklets are really worth-while ones. They're *free* for the asking. Number 187 brings copies to you.

●

188. **Own Your Own Battery Shop.** By doing so, breakdowns on the road due to battery failure will be eliminated. This line of battery chargers is surprisingly low in price, easy to install and easy to operate. So the manufacturers tell us. You'll need something of this kind next winter, and we're reminding you in plenty of time. Just to start the ball a'rolling, we're offering a set of literature covering the line of Tungar battery chargers. You'll thank us next winter, if you place Number 188 on the coupon now!

●

189. **Get a Sample of This.** A generous-sized piece of sheet packing that you can use on your next job is offered, in the event that you are not already a user of this product. Ready-cut gaskets are fine things to have on hand. But, being human, we always will run out of some gasket, just when it is needed for a rush job. By having a roll of sheet packing on hand for *missing* gaskets, hard-to-obtain sizes and *obsolete* truck gaskets, you'll be able to get those jobs out of the shop without delay. You won't be asked to buy anything if you include Number 189 on the coupon. They'll just send you a nice sample sheet; and your conscience can be your guide.

●

190. **Getting After Mr. Emergency.** That's what state and local departments are doing, particularly when a vehicle is involved in an accident. Whether you choose to call it a "parking" brake or an "emergency" brake, it's the same thing. It should be able to *stop* the vehicle, we believe, and not simply hold it after it has been stopped. New literature covers a type of emergency brake called the "Tru-Stop." It's easy to adjust, easy to reline, and actually will do a good job in *stopping* a fast-moving vehicle, the makers tell us. If emergency brakes have been the bane and bugbear of your existence in the past, we'll try to assist you in correcting these conditions. Number 190 on the coupon will bring you the latest literature on this subject; *free, gratis and for nothing!*

The Editor, FLEET OWNER, ...1934
90 West St., New York, N. Y.

Kindly send me without obligation, the following free books mentioned in the.....issue. (Literature will not be sent unless firm name is given.) Order by number.

....

....

Firm Name .....

Address .....

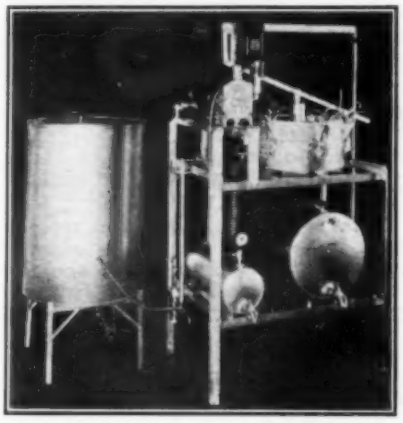
City and State .....

Your Name ..... Position .....

for ROAD *and* SHOP

Hilco Oil Reclaimer

THE manufacturers of this oil-reclaiming unit have recently called it to our attention as a new model. Its operation is somewhat as follows:



Crankcase drainings are poured into a circular tank at the side of the machine, which holds 40 gallons. From this, the oil is continuously pumped up to the reclaimer, subjected to a heat of 380 degrees F., and then run through filtering material which cleans the oil, de-odorizes it and neutralizes any acid.

Reclaimed oil is then drained off into the larger tank, while diluents pass to the smaller tank, for use as penetrating oil, if desired. A vacuum-pump, operated by a ¼ h.p. motor, keeps the machine in continuous operation; 24 hours per day, if necessary, excepting time out to drain off clean oil and change filter pads.

The makers will be glad to supplement this brief description with further details, etc. Made by The Hilliard Corporation, Elmira, N. Y. Mention of FLEET OWNER will help to identify your inquiry.

●

Timken Tubular Trailer Axles

OF interest to operators of trailers is The Timken-Detroit Axle Company's announcement of its new series of Timken Tubular Trailer Axles.

Several important detail changes of design have been made, all aimed at a more perfectly balanced unit, able to withstand the stresses and shocks of severe service.

Especially worthy of note is the fact that the axle is an all-steel integral unit with tubular beams of tempered steel. The tubular type of beam is said to be more rigid and stronger than other shapes of similar weight.

Equally important is the adoption of larger spindles of special alloy steel, machined to accurate dimensions. With this increase in size, spindles are brought into correct proportion with the tubular beam. The result is a stronger complete member of "proportionate design," each part especially designed for correct relation to all other parts, the manufacturers state.

Other important changes in the wheel assembly are new series Timken Tapered Roller Bearings, more widely spaced to give greater wheel stability; and heavier brake drums provide more efficient braking. Write for literature entitled, "Common Sense Facts About Trailer Axles." It's free for the asking.

●

Governors to Meet All Conditions

THE new cantilever spring type of governor, as manufactured by Hoof Products Co., 166 N. Franklin St., Chicago, Ill., is claimed to in no way limit acceleration or engine power, at the same timing completely controlling the engine to the desired speed.

This speed can be quickly set by either a key, which locks the governor when extracted and protects the adjustment against tampering; or by an adjustment screw which can be locked by the use of a metal seal.

The manufacturers have recently installed a machine in their factory, which consists of a very accurate generator, especially equipped to test out carburetor control in relation to the demands upon the engine to meet the requirements of all road conditions.

They have also just issued a very interesting book that explains all about vacuum-operated spark control, such as used on the 1933-34 Chevrolets. Free copies may be obtained on request. Write the Editor, or the firm mentioned above.

●

Valve and Guide Catalog is Offered

THE Toledo Steel Products Company, manufacturers of Toledo valves, valve guides, valve seat inserts and water pump parts, announces a new 1934 catalog.

This catalog contains an alphabetical list of cars with the proper Toledo valve and valve guide numbers for each make and model. In addition, it contains a master numerical list, a numerical dimension chart and a progressive dimension chart for both valves and guides.

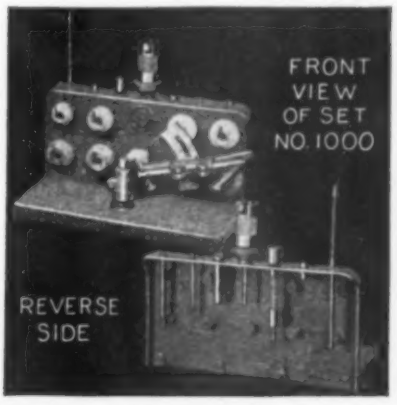
A copy of the new Toledo Valve and Valve Guide Catalog may be secured by writing the Toledo Steel Products Company, Toledo, Ohio.

●

Concentric Valve-Seat Grinder

THE United States Electrical Tool Co., 2490 W. Sixth St., Cincinnati, Ohio, is offering a new Valve Seat Set for servicing both hard and soft valve seats.

It is known as their No. 1000 Set, and consists of six 45° valve seat grinding wheels; set of self centering pilot guides for all valve stem sizes 5/16" to ½" inclusive; one universal valve guide cleaner; grinding wheel adapter; flexible driving member; Model A Ford pilot guide; diamond dressing tool for truing wheels, and combination wheel and pilot guide rack.

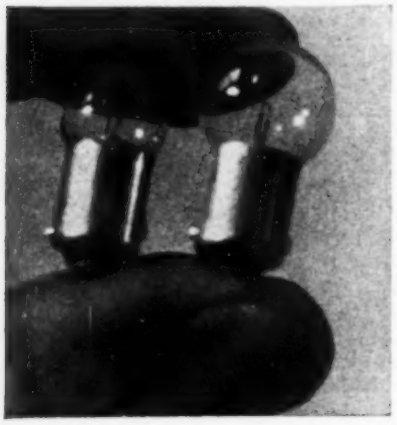


Any ¼" high speed electric drill can be used with this set, but to obtain maximum efficiency and to insure the greatest wheel life, they recommend their U. S. High Speed Driver, operating at 8000 R.P.M.

NEW STUFF *for* ROAD *and* SHOP *(Continued)*

Indicator Lamp Has Standard Base

THIS new lamp replaces the old Mazda No. 50, which was formerly recommended for automotive indicator service. The difference in the new lamp is its bayonet base, whereas the old one had a miniature screw base.



Four different lamps of this type are available, a 1 and 1½-candlepower in clear, and a 1-candlepower in both red and green. Voltage is 6-8 only. List prices are 12c and 15c. Made by Westinghouse Lamp Company, East Pittsburgh, Pa.

•

Marquette Hydraulic Jack

THE manufacturers of this hydraulic jack have suggested that we call it to the attention of fleet operators. It is known as Model H.

The lifting range is from 5 to 18 inches. It comes with the wheels shown; also available with 4-inch wide steel wheels; also with rubber tires.

Many of the features of this jack which cannot be easily observed are contained in an interesting circular, mailed free on request. Address Marquette Mfg. Co., Inc., Minneapolis, Minn. If you write for it, we'd appreciate mention of FLEET OWNER.

New Boring Bar Has Vacuum System

A RADICAL improvement in boring bar construction is embodied in the new Model 400, developed several months ago and now being introduced by the Hall Manufacturing Company.

A feature of this new boring bar is its self-contained vacuum system driven by the same motor that drives the bar. This eliminates all chances of cuttings or dust getting into the motor and saves time in cleaning up after reboring.

The bar is 2-3/16" in diameter and is made of hardened Nitralloy steel. The main bar carries a fly-type cutter and three expanding fingers, with which the bar is quickly centered. There are no inner shafts or extra bearings. The bar can be centered at any position from adjustment located near top of bar.

The cutter is of carballoy steel. On test, as many as forty cuts are said to have been made, without regrinding the cutter. A diamond-impregnated, motor-driven dressing disc with fixture for holding the cutter blade is incorporated in the construction of the bar.

This new boring bar is made in a range of 2⅝" to 4-9/16", with a feed of .004" per revolution, a speed of 300 R.P.M. and a cutting depth of 12". Cuts to .060" may be taken with 100% vacuum protection. Ample power is provided for cuts to .125", permitting a sleeve to be inserted with two cuts. Bar return is by geared hand crank on side of bar. Complete information on this equipment may be obtained by addressing the Hall Manufacturing Company, Toledo, Ohio.

•

New Oxweld Cutting Blowpipe

THE Linde Air Products Company, 30 East 42nd Street, New York, N. Y., has just announced a new oxy-acetylene cutting blowpipe, known as the Oxweld Type C-24.

The Oxweld Type C-24 has been designed essentially to serve as a general-duty cutting blowpipe, but is capable of doing heavier work if necessary, and will operate with less oxygen pressure than any preceding Oxweld cutting blowpipe.

Some of the outstanding feaures of this new blowpipe are: an entirely new design of cutting oxygen valve, the valve being placed in an easily accessible position; a long external cutting valve lever which makes the valve easy to operate with the hand in normal gripping position; nozzles with seat protectors; closer spacing of the heating orifices about the cutting oxygen opening; new nozzle sizes; interchangeable large-capacity ball-type inlet-needle-valves; interchangeable lowpressure injector or medium-pressure mixer.

•

Oil and Gas-Proof Hose

A NEW type of flexible, non-metallic hose, with fittings especially designed to make replacement easy, is offered by Weatherhead Company, Cleveland, Ohio.

This hose is intended for replacement on such applications as gasoline lines, oil lines, etc., and for the conveying of oil, coolants and hydraulic operating fluid in many industries. It is not made of rubber and is claimed to be impervious to the action of oil, gasoline or solvents, and totally unaffected by vibration.

Further details may be obtained by applying to The Weatherhead Company, 620 Frankfort Ave., N.W., Cleveland, Ohio.

•

Free Booklet on Piston Finishing

THE right and wrong ways to refinish a piston are explained in an easily understandable fashion by Walter Trefz, Service Engineer for Aluminum Industries, Inc., Cincinnati, Ohio, in a new 42-page booklet, *"The Piston and Its Finishing."*

Charts throughout the booklet illustrate types of cams, types of pistons best suited for different loads and operating conditions, "cam grinding," skirt measurement, checking cam profiles on pistons, etc.

Detailed information, never before published in this form, includes chapters on piston fitting requirements, nomenclature of piston sections and surfaces, types of cams, "T"-slot pistons, preparation for cam grinding, fitting clearances, care of the finishing machine, and finishing the piston.

The facts, as set forth by Mr. Trefz, are applicable to the finishing of all pistons, and should be of considerable help to fleet owners whose shops are equipped with piston grinding and finishing machinery.

While no general circulation of *"The Piston and Its Finishing"* is being made, those interested in securing a copy free may do so by writing Aluminum Industries, Inc., Cincinnati, Ohio. Mention of FLEET OWNER will insure speedy delivery of your free copy.

NEW STUFF *for* ROAD *and* SHOP (*Continued*)

Dural Color-Tinting Unit

THE Dural Tinting Unit No. 9, recently introduced by the Sewall Paint & Varnish Co., Kansas City, Mo., has been designed for refinishers who are purchasing ready-mixed colors—as all ready-mixed colors must be retinted for an exact match.

This handy assortment contains all tinting colors necessary for completely formulating 90% of the colors used in automobile refinishing. This unit enables the refinisher to quickly, accurately and economically tint colors for exact matching in spot work, the makers state.

A total of 8 pints are packed in a convenient cabinet shipping container—complete with an instruction course on color tinting. A graduated stirring paddle is included free. For further details, write to the manufacturer mentioned above. "You saw it in FLEET OWNER" will help, of course.

●

New Lubricating Gun Set

THE Gem "Caddy", illustrated here, with its quintet of grease guns, is a light, portable unit that may be taken around to the job with ease.

The entire assembly can be taken into pits, or placed under cars on lifts. Since it weighs less than 20 lbs., it affords portability for a thorough greasing job.

Guns for chassis grease, water-pump grease, and fibrous grease are included, as well as guns for clutch

oil, hydraulic brake fluid, penetrating oils, etc. Tray at bottom can be used for small tools, with compartments for cotter pins, washers, nuts, fittings, etc.

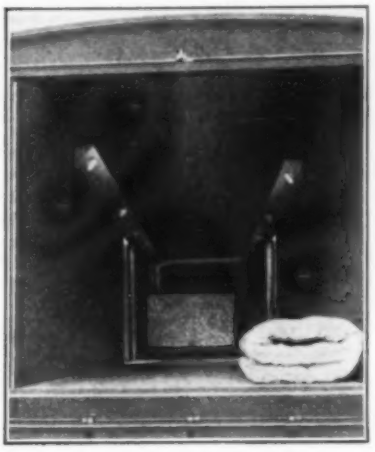
For price and further particulars, address The Air Scale Company, 810 Broadway, Toledo, Ohio, mentioning this publication, if you please.

Kold-Hold Refrigerating System

MECHANICALLY, the system is described as consisting of an insulated housing containing three Kold-Hold cooling units, usually installed in the front end of the body, connected to ceiling ducts through which the air of the body is circulated by means of a thermostatically controlled blower when refrigeration is desired.

The Cryohydrate in the Kold-Hold units is frozen by means of either electric or engine-driven compressor mounted on the truck, or by hook-up with central plant or compressor located in garage—choice of compressor or hook-up depending on individual plant and service conditions.

The Kold-Hold units are usually frozen at night while truck is idle, thus storing sufficient refrigeration for all of the next day's requirements. If the truck, however, is operated continuously day and night, the Kold-Hold units are refrozen enroute by means of engine-driven compressor mounted on truck.



To the best of our knowledge the Kold-Hold low temperature equipment, particularly for ice cream bodies, which was introduced over two years ago, has proven successful and the manufacturers seem thoroughly confident that in the new Kold-Hold Forced Convection System they have a satisfactory product for the so-called high temperature field.

Full details and interesting literature may be obtained free, on request. Address Kold-Hold Manufacturing Co., Lansing, Mich.

●

New Booklet Announced

THE publication of a new 8-page illustrated booklet entitled, "101 Uses for the Air Acetylene Flame," has just been announced by The Linde Air Products Company, 30 East 42nd Street, New York, N. Y. The field of this pamphlet is so large and the subject is treated in such a comprehensive manner that every repair shop will welcome it eagerly as a handy reference guide.

It is pointed out that the air-acetylene flame does not take the place of the widely-used oxy-acetylene flame, but serves as a supplementary tool for use where lower flame temperatures are required.

The booklet goes on to describe the outfit necessary for the work and discusses the advantages of the process. It then proceeds to take up in succession a number of different fields where the process is extremely useful. These include plumbing and piping, air conditioning and refrigeration, marine work, automotive repair, power and electrical, and others.

All repair men whose work includes soldering, brazing or heating operations will want to have a copy of this new booklet

●

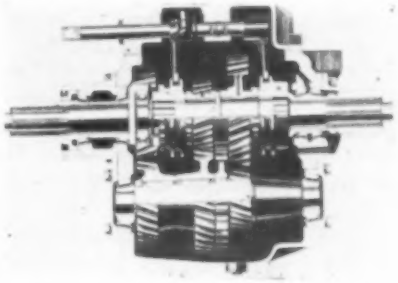
Spicer Offers Auxiliary Transmissions

SPICER Manufacturing Corporation, manufacturers of universal joints, have developed a series of new two- and three-speed auxiliary transmissions, providing increased pulling power and a wider range of speeds. The several models of these transmissions can be installed in any commercial vehicle, old or new.

A two-speed (underdrive or overdrive), also three-speed (over and underdrive) auxiliary transmission used back of the main, four- or five-speed transmission, greatly increases the efficiency of the truck. Where faster speeds only are desired for economical operation, a two-speed auxiliary transmission with an overdrive speed is available.

The three-speed auxiliary transmission is invaluable in improving performance when trucks are used over bad roads and on steep grades, since the unit gives an additional wide range of transmission. Extra high speed is made available when running light on smooth roads; low-low speed for hard pulling; and one of seven different intermediate speeds to meet any other road or load condition.

Since this auxiliary permits a truck speed at least one-half as slow as with the main transmission alone, low-low speed gives traction for starting in soft ground, where otherwise the wheels would merely spin. It also increases power for hill climbing and acts as a safety brake on the descent. The low-low speed likewise enables the chassis frame to weave slowly on especially rough roads.



Where trucks are operated at highest speed with auxiliary transmission in over-drive and main transmission in direct, road speed increases approximately 25% with no appreciable increase in gas consumed, it is claimed.

A copy of the new Spicer Bulletin No. 93 on auxiliary transmissions may be secured by writing Spicer Manufacturing Corporation, Toledo, Ohio. You'll mention FLEET OWNER when writing, won't you?

QUESTION of the MONTH

"By far, one of the most valuable departments to be found in any automotive publication. Every fleet man should be delighted to cooperate."—A Reader

Some of the Interesting Replies to the Trailer Questionnaire (No. 45):

A Brief for the Trailer by An Operator

"WE operate 17 trailers of all kinds; 13 of which are semi-trailers and 4 being four-wheel trailers, with van-type bodies having canvas roofs. They are as safe to operate as straight trucks, but not as flexible, as they are too long for easy parking in congested areas.

"Very little servicing is required to keep our trailers in running order, brakes and tires being the usual work necessary. We have no trouble with the brake or electrical connections, except through the carelessness of drivers in unhooking the trailers.

"We find that we get higher tire mileage because of better distribution of weight with tractor and semi-trailer units. Also, the tractors require less service than 4-wheel trucks of the same payload capacity.

"I am taking the liberty of writing, in addition, some of my views with respect to the operation of tractor and semi-trailer units, in preference to 4-wheel trucks. In the first place, the initial investment for a tractor and semi-trailer to carry a 10-ton payload is in the neighborhood of $3,000—using a 2½-ton tractor and a 3-ton semi-trailer. Depreciation on the tractor is written off 25% annually—say, roughly, about $500 per annum. Depreciation on the semi-trailer is written off 10% annually—about $100 per annum, or a total of $600 per annum.

"By equipping this type of unit with 32 x 6 heavy-duty tires, one can legally license same for 30,000 lbs. gross in New Jersey. Tractor and semi-trailer, with open roof and van sides in body, weigh about 10,000 lbs., giving a 20,000-lb. payload, entirely within the weight laws. Furthermore, because of equal distribution of load, this small tire size can be utilized.

"A 4-wheel truck to carry the same payload would represent an initial investment of about $5,500. Depreciation at 25% per annum would be about $1,400—($800 per year higher than the tractor and semi-trailer.) In addition, one would have to use at least 9.75 x 20 tires, and to load a 10-ton payload would require a fairly long wheelbase, resulting in overload on the rear tires, and consequent tire trouble.

"Furthermore, in the State of New Jersey, this 4-wheel truck could not be licensed for a 10-ton payload, as the chassis, cab and body would weigh in the neighborhood of 14,000 lbs., therefore allowing only 16,000 lbs. legal payload, so that with this type of unit, the operator is in constant danger of paying heavy fines for overloading.

"I trust that my views on this subject may be of interest to other fleet operators."—*H. J. Holzman, Secretary, Allied Freight Distributors, Inc., Weehawken, N. J.*

Double Payload at One-third Increase in Cost

"WE operate 25 assorted trailers in our fleet; these are of various makes and are equipped with tank and flat-bed bodies. We find them as safe to operate as straight trucks and as flexible in traffic as trucks of equal capacity.

"As to advantages, trailers can carry more than double the payload at about one-third increase in cost. They do not require much servicing, brakes being about the only thing needing attention.

"As to disadvantages, short turning radius causes excessive tire wear on semi-trailers with double rear axles. The carrying of heavier loads, made possible by trailers, causes greater maintenance expense on the tractor units, but this expense does not outweigh the trailer's advantages."—*C. J. Boone, Auditor, Lamb's Transfer Company, Long Beach, Calif., operating a fleet of 30 trucks, 6 passenger cars and 25 trailers.*

●

Larger Payloads Possible on Suitable Trailers

"TWENTY-SEVEN semi-trailers are operated by us. These are of various makes, including some especially built. Twenty-five of them have closed van bodies; two have open top bodies.

"These units are not as safe to operate as straight trucks; due to the overall length and height, the chances of damage to property are greater. Neither are they as flexible in traffic and close quarters.

"As to disadvantages, the outer rear tractor tires do not last so long; their life is cut in half, due to close quarters. Our trailers do not require much servicing to be kept in running order and we do not have any difficulty with brake or electrical connections.

"The carrying of larger payloads, made possible by trailers, does not impose extra maintenance expense on the power units, providing that the equipment is suitable for it."—*Otto Herbst, Mgr., J. L. Curtis Cartage Co., Cleveland, Ohio.*

●

Eventually Will Have 100% Tractor-Semi-Trailers

"THERE are 600 trailers in our fleet—590 semi-trailers and 10 four-wheel trailers of various makes. These are equipped with closed bodies built of aluminum sheet outside, with fir panels inside.

"We find them as safe to operate as straight trucks and as flexible in traffic and close quarters. As to advantages, ours consists of having the trailers loaded while other trailers are in service. This requires fewer power units.

(*Continued on next page*)

MORE REPLIES *to the* TRAILER QUESTION *(Continued)*

"Brake service is needed mostly. The balance of service operations are handled at inspection time. Other difficulties are encountered only when the driver forgets to uncouple brake and electrical connections. No extra maintenance expense seems to be imposed on the power units as a result of our using trailers. Our set-up is to eventually have tractor and semi-trailers 100 per cent."—*Wm. J. Reichle, Maintenance Supt., Kroger Grocery & Baking Company, Cincinnati, Ohio, operating a fleet of 450 trucks and 600 trailers.*

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Trailers Lessen Number of Vehicles Required

"OUR fleet of trucks includes 40 trailers, most of which are of the 4-wheel public utility type, of various makes. We feel that these units are as safe to operate as straight trucks, but they are not as flexible in traffic as trucks of equal capacity.

"As to advantages of trailers, there is the load factor, both in bulk and weight; also trailers lessen the number of vehicles required, particularly in tool-cart work.

"Our trailers do not require much servicing, brakes being the type of service needed mostly. We have some difficulty with electrical and brake connections, particularly on pole-type semi-trailers with electric brakes.

"The carrying of heavier loads, made possible by trailers, causes slightly greater maintenance expense on the tractors, but this expense does not outweigh the trailer's advantages. Our service is such that we are compelled to use trailers for tool-cart work and for transporting poles."—*E. W. Jahn, Supt. of Transportation, Consolidated Gas, Electric Light and Power Company, Baltimore, Md., operating a fleet of 150 trucks, 350 passenger cars and 40 trailers.*

●

Four-Wheel Trailers Have Better Operating Record

"WE operate 17 trailers, 12 of which are semi-trailers and 5 are 4-wheel trailers of various makes; all of them are equipped with flat bodies.

"Trailers are just as safe to operate as straight trucks, if they are regulated as to speed. We find them just as flexible in close quarters and traffic. They do not require much servicing, brakes and lights seem to be most troublesome. We have had difficulty in getting a good ground for lighting connections. Somewhat greater maintenance expense is noticeable on the tractors, than on straight trucks, but this does not outweigh the other advantages.

"We have found that our four-wheel trailers have better operating records as to safety, than our semi-trailers or straight trucks. Also, our semi-trailers have better safety records than our straight trucks on a mileage basis.

"Although our semi- and four-wheel trailers cannot make quite as good time as our straight trucks, they are very satisfactory, as our operation is a low speed one and we keep all of our equipment under 40 m.p.h., and speed is not a requisite."—*B. H. Ellington, Manager, N. B. & C. Motor Lines, Washington, N. C., operating a fleet of 18 trucks and 17 trailers.*

(Please tear out and mail to The Editor, The Fleet Owner, 90 West St., New York City)

Question No. 47—Tire Retreading

Have you had any recent experience with retreaded tires, or tire retreading?.....
Is this work done in your own shop?..... Or, is it done by others?.....
What system or make of machine is used for retreading?.....
What percentage of the original mileage is guaranteed on retread jobs?.....
What percentage of the original mileage do you actually get?.....
What percentage of the original tire cost, does the retread job cost?.....
Do retreaded tires stand up under your most severe operating conditions?.....
What troubles, if any, have you experienced with retreaded tires?.....
.....
.....
Do you retread 4-ply tires, or only 6-ply and larger?.....
If you have previously used retreaded tires, and have discontinued this practice for any reason, please let us have your experience .....
.....
Is retreading of tires an economical procedure, under present tire costs?.....
Other remarks that you think would interest brother operators.....
.....
.....

We operate ..... Trucks; ..... Buses; ..... Pass. cars; ..... Trailers

***Note:** If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.*

Swap your Maintenance experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm .....
Address .....
City and State .....
Your name .....*Position*.....

Accident Control in Fleet Operation

(*Continued from page* 20)

Governors and other devices can be used to limit the top speed of vehicles, and it has been found that they not only reduce accidents, but that they are good insurance against excessive maintenance and higher operating costs that follow top speed operation.

Proper headlighting is important. A study of the many good papers presented in S. A. E. meetings leaves one with the impression that there is much to be desired in headlight design from an operating standpoint. There is a distinct need for a headlight that can be kept on bright with a low beam and that will not cause a glare to approaching vehicles.

Good cab vision, adequate and reliable windshield wipers, ample rear vision mirrors, stop and clearance lights, good signalling ability, etc., should be provided in fleet vehicles.

Vehicle manufacturers can give commercial operators real assistance in the prevention of accidents by careful study and treatment of the design factors that make for safer operation.

Conclusions. During the development of this report, I was asked what conclusions we were going to be able to draw from it. We could draw many of them, but this appears to me to be the type of paper in which conclusions are too apt to be anti-climaxes. Beyond saying that the driver is the most important factor in accident prevention; that the cost of adequate accident prevention activities is a negligible portion of operating expense, or perhaps of one serious account; that accidents are increasing and that present activities are not sufficient to stop the upward trend, we prefer that any conclusions to be drawn be of your own choice.

In the individual opinions of the S. A. E. Committee members, the most serious aspects of present day accident trends are:

There are too many incompetent and irresponsible drivers on the road, disregarding common sense rules of safety, traffic control systems, etc. The need for driver education, adequate driver's licensing laws and, uniform traffic regulations is plainly seen. Unfit and unsafe vehicles should be cleared from the roads, probably by compulsory inspection requirements.

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An All-Aluminum Brewer's Dozen

(*Continued from page* 22)

itial investment in from nine to ten months, it is claimed.

Inside dimensions of the Stroh aluminum bodies are as follows: length, 151 inches; width, 84 inches; height, 48 inches from floor to top of structural members; 68 inches from center of floor to center of roof bows.

Standard stock of special analysis (17ST) aluminum was used in every structural component. Forming the sturdy foundation are four-inch aluminum channels at the extreme front and rear and two four-inch I-beams located just forward and just to the rear of the wheel-houses to give the necessary added strength for the center load.

On each side at the ends of the channel and I-beam sections are two-angle members, 2½ x 2½ x ¼ inches riveted at the top and bottom. H-section uprights, 1½ x 2 inches are in turn riveted to the angles, an advanced construction feature which contributes much to the staunchness of the entire structure. Corner posts are of channel section, 1½ x 1½ inches.

Protecting slats or "rub rails" of extruded aluminum section, 2½ inches wide inside the body, serve also as structural members, giving maximum strength to the body superstructure. Front and rear header bars are 1¾ x 1¾ x ¼ inch angles. Outside dimensions of the tarpaulin bows are 1½ inches, and the thickness .095 inches. The roof connecting slats are 1¾ x ¼ inches round edge aluminum.

The engineering resourcefulness represented in the construction of these aluminum bodies is particularly evident in the fabrication of the floors, which were made in two sections. The top section, of diamond pattern tread plate, is supported on corrugated aluminum sheets with corrugations running lengthwise and riveted securely at the bottom to the cross members. The top plate is again riveted to the corrugated sheet at approximately every other corrugation, thus in effect incorporating the full recognized strength of truss-girder construction. Side and end panels between openings are of 14-gauge sheet paneling (half hard) riveted to the uprights and corner posts.

An interesting detail, highly important in the structural use of light alloys, is the waterproofing of the aluminum at all points of metal-to-metal contact. A liquid, waterproof asphalt is used for this purpose. It not only prevents natural corrosion, but at the same time serves to arrest any electrolosis which might be set up at these points. All bolts and rivets used in the bodies were dipped in this preparation.

Wheel housings are rectangular and of exact case height to level out the first tier of the load. They also provide surface space for carrying two half-barrels. Thus straight loads of cases or combination loads of cases and barrels may be arranged compactly and handled easily.

Loading and unloading is effected from 34-inch doors on either side or from the 45-inch opening at the rear. Chain-linked aluminum stakes are used to close the side openings and an aluminum tailgate, which comes to rest at a horizontal position on a level with the truck floor proper, facilitates the handling of cases and barrels from the rear.

The manner in which the foundation of the bodies was designed and mounted on the Dodge double-drop chassis frame keeps the loading level conveniently low—the uniform measurement from the ground to the top of the floor being 36 inches. This feature is particularly appreciated by the crew, consisting of a driver and two helpers, which mans each truck.

●

Synthetic Enamels for Passenger Cars?

(*Continued from page* 26)

content and stay wet longer, many manufacturers are recommending a light mist or fog coat, to be immediately followed by a full, even coat. The reason for this is that the first coat, in its partly dried or tacky state, provides sort of a binder for the full coat to adhere to, thus helping to prevent sagging and wrinkling. In fact, some painters start spraying the mist coat on a vehicle at one end, such as at the gas tank, and by the time they have gone completely around and arrive back where they started from, they are ready for the second, or full coat. The drying time between the thin mist coat and the full coat, is given as about 20 minutes, on the average.

Most manufacturers of synthetics caution against recoating, if it cannot be done within ½ to 1½ hours after the application of the first coat. If for any reason, the second coat cannot be applied within that time,

(*Please turn to page* 48)

Sales Representative Wanted

ESTABLISHED Eastern manufacturer has openings for local representation in various parts of the country. Salesmen with fleet-operator following, desiring line of cost-reducing specialties with repeat possibilities, are invited to correspond with the undersigned. The line is not sold through jobbers, has safety appeal and territory appointments will be exclusive. Address W. V. H., c/o Editor, FLEET OWNER, 90 West St., New York City.

•

Illinois Buys More Motorcycles

IN line with the increasing use of motorcycles for various forms of police work, the State of Illinois has decided to increase its already large fleet of motorcycles. It has ordered 25 additional Chief "74" model Indian police motorcycles, for the use of the Illinois State police, according to announcement by James A. Wright, sales manager of the Indian Motorcycle Company, of Springfield, Mass. Delivery will be made at the police headquarters in Springfield, Ill.

•

Norman Roblee Passes On

NORMAN ROBLEE, veteran motor truck executive in charge of National User Sales for the International Harvester Company, with headquarters in Chicago, died at St. Luke's Hospital, Chicago, July 2nd. Until recently, Mr. Roblee was in charge of retail motor truck sales at the Harvester Company's Philadelphia branch. He was previously connected with White and Brockway-Indiana.

•

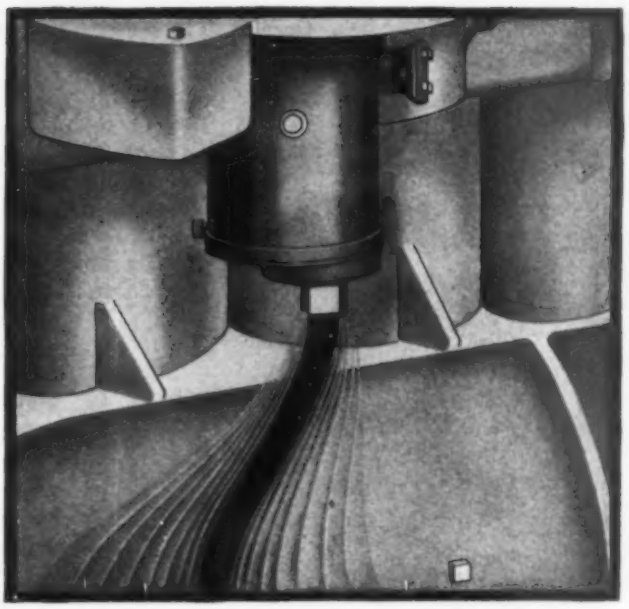
Chevrolet Flat Cowl Job

A NEW truck chassis, equipped with flat-faced cowl is announced by Chevrolet as optional on its 112, 131 and 157-inch wheelbase models. The new design permits the use of any custom body built for a flat cowl. It was prepared especially for the benefit of the many vocations using special bodies, such as school buses, refrigerated bodies, public utility construction jobs, contractors' dump bodies and other types that do not utilize separate cabs.

•

Wagon Equipment vs. Truck Capacity

WITH respect to rating the capacity of seven wagons and six horses into the equivalent motor truck capacity, the commission stated: "It is difficult to determine how many motor vehicles would perform the work of his seven wagons and six horses, but he has at present three motor trucks of which only one is in use. They are of two and one-half ton capacity each. The Commission will recognize his right to engage in the transportation described above and to use three trucks of that size, and he will be registered accordingly." —*In re: Application of R. S. Guttridge, Registration Docket No. 17, Pub. Serv. Commission of Pa.*



HERE'S a HOSE LINE *just as tough as your truck!*

NORMAL truck operation sure plays tricks with motor parts that can't take it . . . and if a part isn't *just as tough* as the motor, it hasn't any business being there!

Here's a fuel and oil line that won't let you down . . . that won't thumb its nose at time schedules . . . that won't put a motor in the shop before its time.

Every truck in a fleet should pay for its keep *if it is kept on the road!* Eliminate *one big cause* of motor breakdown . . . install Weatherhead Gas and Oil-Proof Non-Metallic Hose . . . with the patented fittings that go with it. This hose is built *tough* . . . it is *flexible* . . . it is gas and oil-*proof* . . . and no amount of motor vibration will shake it loose from the fittings.

Here is breakdown insurance with a negligible cost. If your jobber cannot tell you about it, fill out the coupon below.

THE WEATHERHEAD CO., 620 Frankfort Avenue, Cleveland, Ohio
I certainly am interested in your Gas and Oil-Proof Non-Metallic Hose. Send information and name of nearest jobber.

Name_____

Address_____

Units_____

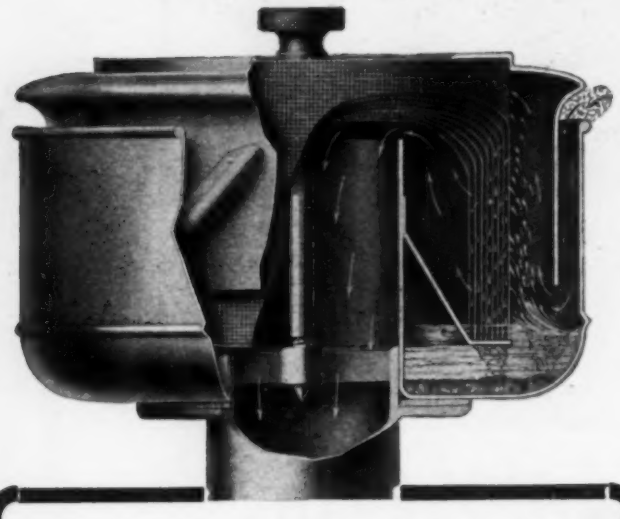
WEATHERHEAD

PIONEERS OF TROUBLE-FREE FLEXIBLE TUBE AND FITTINGS

Say "I saw it in FLEET OWNER"—It Helps!

AIR-MAZE

Oil Bath Air Filter



You Need It NOW!

There's dirty work ahead.

And it's a dirty trick on your engine, if you don't give it an Air-Maze.

For Air-Maze is the one air cleaner you can count on for *complete* protection—for complete elimination of dirt, dust and grit in the explosive mixture.

When you let air enter the carburetor "as is" you invite dust and dirt to get into the finely fitted working parts of your engine. Hard carbon forms. Bearings burn out. Cylinder walls show premature wear. Oil is contaminated and has to be changed more frequently than necessary.

Why do you do this? Simply because you don't see the inside of your engine—but you do see the high price of this dirty work whenever you look at your repair and maintenance costs.

And those are the kind of facts we can make you see most convincingly, if you will just drop us a letter so we may place them on your desk.

AIR - MAZE CORPORATION

312 Caxton Building • Cleveland, Ohio

Synthetic Enamels for Passenger Cars?

(Continued from page 46)

it should not be done until at least 12 hours have elapsed, preferably overnight. However, different manufacturers' specifications do not seem to agree on the exact number of hours necessary to wait. Some of them say 4, 5 or 6 hours are sufficient to wait between coats, in the event that immediate recoating is not possible.

We must again emphasize the importance of following the instructions that may apply to the product *you are using*. This article is attempting to be *general*. In last month's article most of the characteristics of synthetic enamels were discussed; therefore we shall refer you to that article rather than repeat them here.

Since we are discussing passenger cars this month, most of which are equipped with wire wheels, a paragraph or two concerning wire wheel refinishing might be in order. In cleaning wire wheels preparatory to refinishing, some operators take a large metal drum, remove the top, and fill it with hot cleaning solution, such as Oakite, Magnus, Wyandotte, etc. The use of tri-soduim-phosphate, a common chemical that can be obtained from any chemical house, is also said to be popular for this purpose. By merely immersing the wire wheels for a short period, they will come out completely stripped of all old paint, grease, grit, etc. When they are washed clean and thoroughly dry, they should be mounted on some sort of an arbor, so that they can be spun.

While spinning each wheel slowly, the enamel can be sprayed, pointing the gun first from the front, then from the rear; then the same way on the other side of the wheel. Or, you can stand in one position and spin the wheel one way and then the other way, so that all of the surfaces of the spokes are covered. The recommended procedure is to do the hubs and felloes last, which will help to eliminate running and sagging.

In closing, a word of warning about touching-up on the 1934 Ford cars: These cars, as we understand it, are finished in synthetic enamels, which are *baked* on at high temperatures. Many shops, for repairing damaged sections, are using pyroxylin lacquers, since they have regular color matching outfits and are able to do a good job with this material. It is to be emphasized that "spot" repairs on these jobs will not work out, because synthetics and pyroxylin "weather" differently and in a short time there will be a difference in color. You should therefore spray the entire door, or the entire panel, in repairing damaged work. And even this will change color in time.

Some manufacturers are marketing special synthetic colors to match those used on the 1934 Ford passenger car. It might be well to use these for touch-up work, instead of lacquer, but it is advisable also to refinish the entire panel, instead of trying to make a "spot" repair, because of the fact that a *baked* finish will weather differently than an air-dryed job. If a spot repair is attempted it may not match and if it does match, it may change color in a short while. That is why they advise you to refinish the entire panel, or door.

If there are any thoughts that we have not covered in this article, we shall be pleased to answer any questions on the subject of synthetic enamels. What we don't know, we'll find out.

In conclusion, let us state that practically all of the leading paint manufacturers are now offering synthetic enamels for fleet use. Several are regularly advertised in this publication.

Analyzing Electric System Failures

(*Continued from page* 30)

generally much greater than the heat dissipated in a 6-volt coil, because resistance causes heat, and more resistance must be used in a 12-volt coil than in a 6-volt coil. This resistance must be somewhere— either in the coil winding, itself, or external resistance. We have found that it is better to use external resistance. because most of the heat is dissipated outside of the coil. The coil then will remain much cooler than if the heat were all dissipated in the coil winding. See Fig 5.

The condenser is also impregnated with a compound having approximately the same melting point as used in the secondary winding. Of course, the condenser is not subjected to electrical heat, such as the coil winding. However, if a condenser is installed over the exhaust pipe or right on top of the engine, making a flat contact with the cylinder head, the insulation of the condenser is likely to become weakened, due to the compound melting. We recommend setting the condenser where air will circulate around it in order to keep it from getting too hot. Of course, the condenser cannot be set too far away from the distributor, but it does not need to be placed on a hot piece of iron.

Heat also effects the functioning of a condenser. Regardless of the insulation, a condenser will leak and fail to hold a charge if it is compelled to work under extremely hot conditions. Many times, a condenser has been removed from the engine and proved to be okay during a test, but would not work properly on the engine. The reason it tested okay is because it had cooled off.

In many cases, where a radio is installed, the spark is weakened, due to the installation of radio suppressors. This weak spark causes hard starting and missing at higher speeds. In such cases, it is necessary to install a coil that has greater capacity—one that will stand the loss caused by radio suppressors and still have sufficient energy to give good ignition.

The coil should be located away from the radio and a metallic shield placed over it and securely grounded to the engine. A metal shield similar to a tin can will be all right, but be sure that it is large enough so that the coil will not be choked. (See Fig. 6.)

In addition to the trouble caused by improper installation, as explained in this article, rough handling of coils and condensers also causes trouble. Manufacturers sometimes receive coils shipped back improperly packed, and, in some cases, several coils are placed loosely in one box. If these coils were not defective when removed from the car, they are bound to become defective by the time they reach the manufacturer.

There have been many cases where the terminals on both coils and condensers have had so much excessive pressure placed on them in tightening them down, that the threads were either stripped or the terminals were twisted off. This is another practice that should be guarded against.

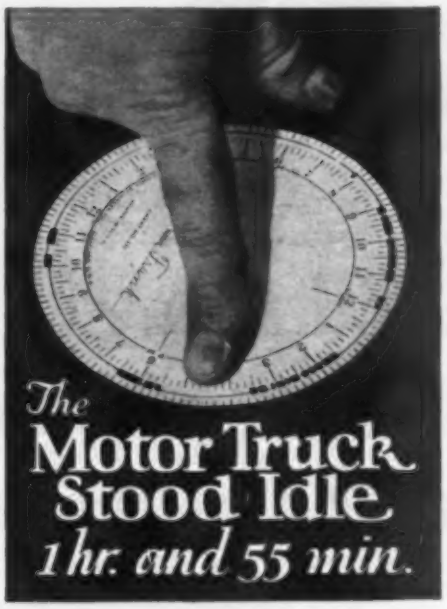
●

Doing Grinding Work in the Lathe

(*Continued from page* 34)

in getting accurate results. Passing the grinder two or three times across the face of the valve is usually all that is required. In this manner, valves can be trued at the rate of about one a minute, on the average.

In connection with valve servicing there are several other grinding jobs, namely, grinding the end of a valve stem, grinding a valve tappet, tappet adjusting screw,



And You Can Put Your Finger Right On It!

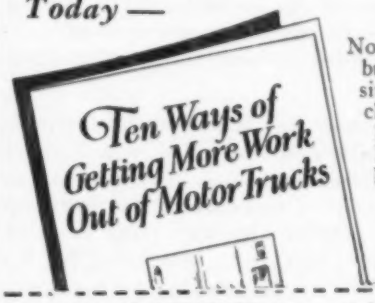
WHAT does it cost when your motor truck stands idle somewhere for an hour and 55 minutes? It costs pretty close to $8.00! That's plenty, we'd say.

One thing is certain, you never realize it until you SEE it. And when you see it in chart form (like the *Servis Recorder* chart above) then, we repeat, you can put your finger right on those delays; and then you'll know what to do, all right!

A Truck Can Easily Waste $500 a Year!

Why allow it, when the *Servis Recorder* can prevent these costly delays? All you need is a screw driver—why, you could *NAIL* this *Servis Recorder* on your truck, and it will automatically give you every day this "picture" of the work your truck did during the past 24 hours—the heavy marks on the chart registering the truck *at work* and the spaces in between showing when it was *idle*.

Write for it Today —



New 7-Day Model

Now you can get a 7 days' busy-idle record on a single chart without changing. When you lock the new 7-Day Recorder, you don't have to touch it again for a week! The coupon brings the whole story.

THE SERVICE RECORDER CO. F.O. 8
Hanna Bldg., Cleveland, Ohio

Please send us, without obligation, "10 Ways of Getting More Work Out of Motor Trucks."

Company .....

Attention of .....

Street .....

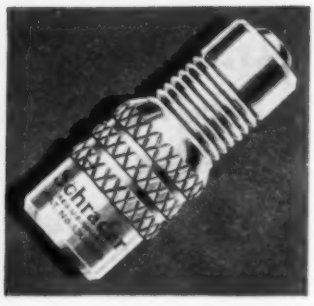
City & State .....

The Service Recorder Company
Cleveland, Ohio

THE SERVIS RECORDER
"Keeps Trucks Busy"

Avoid delays with these mighty tire-saving midgets

Schrader Valve Core—Standard of the tire industry and the sturdiest made.



Schrader Dublcbek (No. 7006)—Permanently affixed "valve-in-head" cap and secondary air-seal.

An old worn-out valve core, or a missing valve cap, can halt the most powerful truck or bus as completely as an empty gas tank. With the delay go time, wages and prestige . . . to say nothing of precious tire mileage due to inadequate air pressure. And even a few wheel revolutions on a "flat" may severely damage the tube and casing.

Look ahead. Play safe. Don't let preventable emergencies happen—out on the road. Forestalling them is virtually but a matter of moments and pennies. Though they may have served long and well, valve cores should be periodically replaced with fresh ones. And be sure they are *Schraders*—standard of the tire industry and the most rugged and dependable made.

Then—protect them with Schrader Dublcheks, those ingenious secondary-airseal caps which need not be removed for inflating. . . . The air shoots right in through them. Guaranteed air-tight up to 250 lbs. pressure. Order through your regular supplier. A. Schrader's Son, Inc., Brooklyn, N. Y.; Toronto, Can.—*Makers of pneumatic valves since 1844.*

Schrader

Reg. U. S. Pat. Off.

TIRE-SAVING VALVES, CAPS AND GAUGES

"Be sure it's a Schrader—Look for the name"

rocker arm face, etc. All of these jobs follow the same fundamentals of set-up and grinding as the jobs previously described.

Valve seat reamer grinding and the grinding of other reamers, whether spiral-fluted, straight or tapered, is as much a matter of ingenuity of set-up as one of grinding technique. Space, however, will not permit detailed instructons for grinding all of the different types.

Because valve seat reamers are more frequently used than other kinds, a few hints on grinding them might be in order here.

Before doing anything else, test the reamer pilot or shank for straightness. If it is not straight, it must be made so or discarded. Then mount the reamer in the lathe.

Swivel the grinder to 45 degrees (or the angle required and dress the corner of the wheel to a bevel. Adjust the tooth rest 1/64th inch below center to obtain the necessary clearance on the ground blade. Make certain that the grinding wheel contact point is exactly the same height as the lathe centers.

With this set-up made, then rub a thin film of Prussian blue on the reamer blades and, without starting the grinder, bring the grinding wheel up so that it just touches the reamer blade. Hold the cutting edge of the reamer against the tooth-rest and turn the grinding wheel by hand, to mark the blade. This will show whether the set-up is correct for duplicating the original clearance and bevel of the reamer. If not, make the necessary adjustments.

When all adjustments are made, lock the carriage to the lathe bed. Then start the grinder and feed the wheel in very carefully by turning the cross-feed screw knob. Feed back and forth across the reamer blade by turning the compound rest screw knob.

Take very light cuts to prevent burning the reamer and remove only enough metal to obtain a sharp cutting edge. When the first blade is ground, stop the grinder and check the cutting edge of the tooth to be sure it has been ground all the way across, then proceed to grind each tooth in the reamer.

By grinding your own reamers, you can make a substantial saving and at the same time be assured of properly sharpened tools.

●

Trucks Being Checked Under Kansas Law

A TOTAL of 117,613 motor trucks, including 69,901 foreign vehicles, were checked on crossing Kansas borders the first quarter of 1934, says the Kansas State Corporation Commission Attorney.

The law has been in effect since January 1st. The state official contends that it does not obstruct interstate commerce, and that it has been beneficial to the State and Kansas truckers. Sixty-five inspection stations where trucks are stopped and checked have been established. Collections of fees during the three-months period were placed at $112,406.

While the law is said to be beneficial to Kansas truckers, there is considerable discussion as to the effect it would have on interstate trucking if adopted by several surrounding states.

State officials and legislators in session at the Western Bus and Truck Conference at Salt Lake City, recommended approval of the law. The statute is held to "promote the safety and welfare of the public, the preservation and maintenance of public highways and the integrity of the regulation of motor carriers, and more equally to distribute the payment of fees."

Eastern Operator's Experience With Refrigeration

THE York Motor Express Company, operating a large fleet of heavy-duty trucks covering points east from Harrisburg, Pa., to the coast, recently equipped a ten-ton trailer with the new Kold-Hold forced convection system of refrigeration.

According to the manufacturers, it made its first run on May 19, hauling a load of butterine, butter, frozen eggs, and meat from Jersey City to Philadelphia and delivered it at exactly the temperature it was loaded, namely, 42 degrees. They further state that the cost of refrigeration was considerably low.

The manufacturer claims that this new method of truck refrigeration is ideal for handling practically all products in which a temperature within the range of 35 to 60 degrees is desirable. They state that their system may be adjusted to provide any desired temperature in that range, that it is automatically maintained by the thermostatically controlled blower, and that it is delivered to all portions of the load in which refrigeration is required with a uniformity varying less than 5 degrees. By means of a heavily insulated curtain and suitable damper controls in the ducts, refrigeration can be confined to any portion of the load which, of course, makes it possible to haul mixed loads at a minimum of refrigerating expense.

Here's the refrigerated job mentioned in the accompanying article. It is understood that additional equipment of this type has been ordered, with the same type of refrigeration.

The manufacturers further point out that the system occasions no odors, no drip or muss and no contaminating influence to either the product or the truck body. There is no labor in loading or unloading refrigerant or containers and the undelivered portion of load may be left aboard at night without danger of spoilage. The hauling range of a truck equipped with this system of refrigeration is said to be virtually unlimited. Advices received from the manufacturer indicate that the York Motor Express Company has placed orders for additional equipment of this type. Address Kold-Hold Manufacturing Company, Lansing, Mich., for further details, if interested.

●

Fleet Superintendent Available (Adv.)

CHANGE in management has resulted in the availability of superintendent of truck fleet. Thoroughly versed in all branches of work, including supervising, buying, cost records, repairing and painting. Good knowledge and experience with refrigerated and insulated bodies. In former position had charge of 130 trucks. Now seeks connection with good fleet; any location.—F. N. S., c/o Editor, FLEET OWNER, 90 West St., New York City.

GOOD OIL GETS DIRTY... BUT IT DOESN'T WEAR OUT

THE NEW SKINNER STREAM-LINE OIL FILTER

Purifies Crankcase Oil for 1½c to 4c per Gallon

Now you can restore the value of your crankcase oil as a lubricant by cleaning it thoroughly with the Skinner Stream-Line Oil Filter. It not only does the job completely, but *economically*—at a total cost of only 1½c to 4c per gallon!

● 20 MINUTES LABOR PER DAY

This new Filter requires a minimum of attention—only ten minutes each twelve hours! And skilled labor is *not* needed.

● AUTOMATIC—POSITIVE IN ACTION

Nothing but completely purified oil can come from the Skinner Oil Filter, because it automatically shuts off when the filter packs become clogged with the filtered impurities. No laboratory control required.

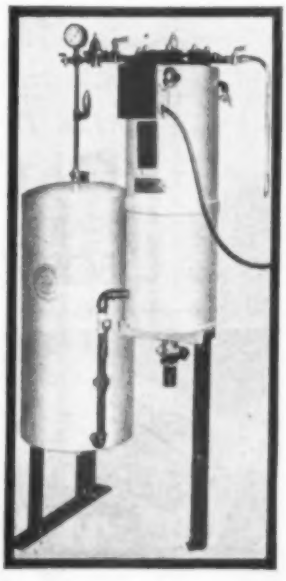
● NO CHEMICALS TO BUY

The new Stream-Line Filter employs no chemicals—is wholly mechanical in action. Thus it avoids all possibility of changing the original structure of the oil, and eliminates needless expense and necessity for skilled labor.

GOOD OIL does not wear out or lose its inherent lubricating value while in use. But it *does* become contaminated with impurities which impair its lubricating value and increase motor wear. The Skinner Stream-Line Filter removes all these contaminants—water, carbonaceous matter, silica, etc., down to particles of 1/250,000 of an inch.

Skinner enables operators to save hundreds of dollars each year—*directly*, through the complete purification of crankcase oil: *indirectly*, by cutting down on motor wear through more frequent changes. And Skinner makes it possible for *small*, as well as large operators, to enjoy these savings. The new Stream-Line Filters are available in several sizes, from $125 on up.

Fill out the coupon below, and let the Skinner representative in your territory *show* you how the Skinner Stream-Line Filter will remove all impurities from your crankcase drainings, and *save you money*.



MAIL THIS COUPON TODAY

Skinner Motors, Inc., 2225 Dalzelle St., Detroit, Mich.
We want complete details on the new Stream-Line Filter.
☐ Have representative call. ☐ Send complete information.
Name.....
Address.....City.....State.....
FO-8

but...

shop men are not wizards

You cannot expect shop men to give you the adjustments for best economy and power unless you provide them with a method of *knowing* what goes on within the motor when it is operating on the road. The Cambridge Exhaust Gas Tester offers a dependable, accurate and convenient means for making continuous exhaust gas analyses on the road as well as in the shop. Adjustment need no longer be experimental and the mechanic not only does a better job but does it more quickly. Send for booklet No. 144-E.

11" x 8" x 8"—Wt. 29 lbs.

Cambridge Instrument Co., Inc.
3732 Grand Central Terminal
New York City

CAMBRIDGE EXHAUST GAS TESTER

DEMOUNTABLE TRUCK BODIES

WRITE FOR INFORMATION

ROLOFF, INC.
KENDALL SQUARE
BOSTON—MASS.

PLYWOOD HASKELITE PLYMETL

FOR BETTER BODIES!

use PLYMETL

"LIGHTEST and STRONGEST" PANELING

HASKELITE MANUFACTURING CORPORATION
208 W. WASHINGTON ST., CHICAGO

Calls on ICC to Stop Rail Rate Undercutting

URGING that the Interstate Commerce Commission use its authority to stop the competitive rate war between the railroads and motor trucks, Harold S. Shertz, of Philadelphia, speaking for the National Code Authority for the Trucking Industry, argued that the granting of Fourth Section Application No. 15430 would perpetuate the "vicious circle" of rate cutting.

Argument was heard by the full Commission, July 16, on the application of carriers in official territory for relief from the aggregate-of-intermediates clause of the Fourth Section. Granting of the petition would give the carrier blanket authority to reduce rates by as much as 40 per cent under the guise of "meeting truck competition." The carriers were represented by R. J. Lehman.

The argument was held pursuant to briefs of exceptions filed on behalf of the National Code Authority, the Motor Truck Club of Massachusetts, the New York State Motor Truck Association, and the American Trucking Asociations, Inc., and other trucking associations.

Mr. Shertz contended that the operation of the Trucking Code, particularly with respect to the stabilization of rates, eliminated the necessity for the inauguration by the rail carriers of the competitive rates. He said truck operators, in most instances, were bringing their rates in line with rail rates, and that further reductions on the part of the rail carriers would act to destroy, rather than meet, truck competition.

●

Welding Chevrolet Knee-Action Units

A CHEVROLET knee-action housing nearly complete is shown in the welding machine by which the bearing bosses for the support arm shaft are fixed in the housing in the Chevrolet spring and axle plant in Detroit.

The bosses are aligned and spaced on the shaft of the welder, by which the entire housing is given a complete revolution. As it turns, the housing walls and the bosses are joined by an annular weld completely surrounding the bosses.

Two Westinghouse automatic welding heads, as seen in the illustration, control the welding process producing a uniform, dependable weld.

How REA (Boston) Won Safety Contest

THE Group Winners in the 1933 Safety Contest, sponsored by the Massachusetts Governor's Committee on Street & Highway Safety, have been asked to state some of the safety features in effect in the operation of their fleets, which they felt were of great assistance in the winning of their awards. Here is the statement made by the second of these group winners, the Railway Express Agency, Inc., Boston Division, whose fleet has had a consistently good record during these contests:

"Railway Express Agency's Boston Division takes a pardonable pride in its record as a Group Winner of the Governor's trophy for three consecutive years, thereby demonstrating that results can be accomplished within so congested a traffic area as Greater Boston, to which are confined the operations of this particular division of the Express Company.

"Although intensive supervision was necessary to assist in putting Railway Express drivers in first place, the Company's officials freely admit that the men themselves deserve the major share of credit for their interest and effective cooperation.

"The supervision referred to starts with the equipment, since no man can be a safe driver with an unsafe truck. Daily mechanical inspection is the rule and each driver is required to report on daily cards anything he considers defective, or to note thereon that his vehicle is O.K., which means that it is free from defects that an operator can reasonably be expected to notice.

"Throughout the three-year-period, and continuing as a regular feature, group meetings have been held at which careful operation has been stressed and employees urged to take part in the discussion, which has proved of very great mutual benefit.

"There have been three main angles of approach; first, Public Safety—the pedestrian *always* has the right of way; second, it is better to forego one's 'rights' than to risk a collision; third, a driver entrusted with costly equipment should justify that trust by handling it carefully. In general, emphasis has been placed on the fact that 'Accidents don't happen—they are caused.'

"As accidents do occur, each is carefully investigated and those involved personally interviewed by a superior, primarily to fix attention on how the affair might have been avoided. The preventive aspect is emphasized.

"Railway Express Agency officials point out that the Company's service has always attracted a high grade personnel, the so-called 'labor turnover' being extremely low, and to this fact—coupled with the Company's insistence upon safe equipment—must be attributed much of the success of the Boston Division."

●

Dangerous Radiator Cap Ornaments

MANUFACTURERS making radiator cap ornaments that project in front of the radiator, especially those with sharp points, and those considering the use or production of such accessories, are warned that responsible authorities are severely criticizing such gadgets and without doubt soon will campaign actively against their use.

Insurance companies, the National Safety Council, the Eastern Conference of Motor Vehicle Commissioners and other organizations rightly regard such accessories as viciously dangerous. Such radiator cap ornaments come mostly from abroad; though domestic manufacturers are producing them.

There are cases of record where persons were killed by being thrown up against such protrusions on cars

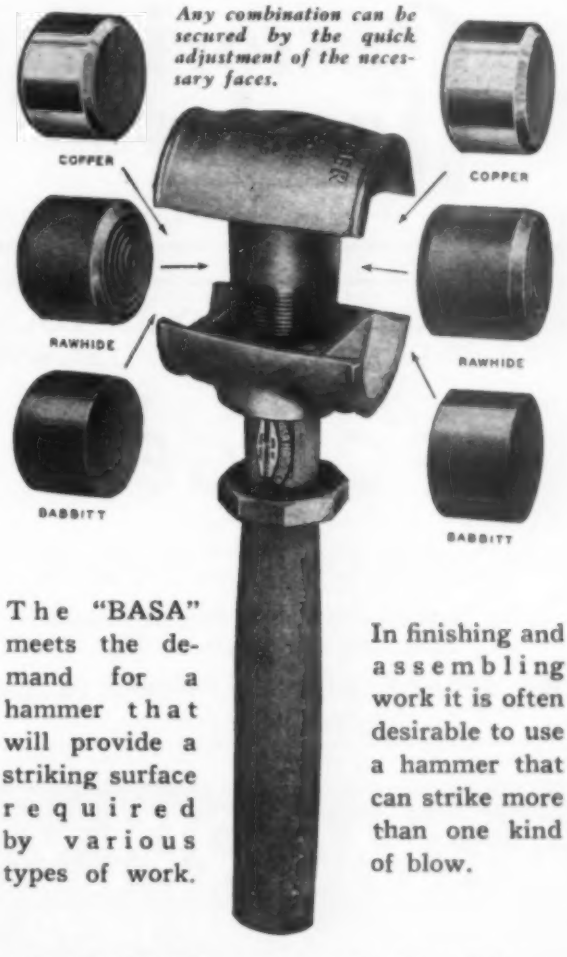
A BLOW WITHOUT A DENT

TAKE NO CHANCES OF DAMAGING FINISHED SURFACES

Use the

BASA HAMMER

Designed to take faces as soft as Rawhide and as firm as Copper and Babbitt.



The "BASA" meets the demand for a hammer that will provide a striking surface required by various types of work.

In finishing and assembling work it is often desirable to use a hammer that can strike more than one kind of blow.

The "BASA" Hammer can be depended upon for uniform quality and durability.

Send for full particulars

GREENE, TWEED & CO.

Sole Manufacturers

109 DUANE ST. NEW YORK

quick service on fenders

THE most satisfactory service on fenders for Chevrolet, Ford and many other commercial fleets can be obtained from the jobber who handles Fostoria Fenders in your neighborhood. Write us for his name.

We will send you also our catalog and price list. Write today.

THE FOSTORIA PRESSED STEEL CORPORATION
Dept. O-8 Fostoria, Ohio

GENUINE **Fostoria fenders**

THE WORLD'S STANDARD REPLACEMENT FENDER

IF YOU RODE ALL DAY IN YOUR OWN TRUCKS YOU WOULD INSIST ON

SPONGEX

(Sponge Rubber)

HONEYCOMB CUSHIONS

THE MOST COMFORTABLE CUSHIONS FOR TRUCKS AND BUSES

THE SPONGE RUBBER PRODUCTS CO.
Derby, Connecticut

ARMORPLY

A SUPERIOR METAL FACED PLYWOOD PANEL FOR BODY CONSTRUCTION

Write for samples and prices

UNITED STATES PLYWOOD CO. INC.
603 W. 36th. ST. NEW YORK CITY

that were at the curb and not in motion, by being literally impaled on spear-like radiator cap ornaments sticking out from the radiator and that actually daggered them to death! We have seen a photograph of one person stuck through the heart by such an instrument produced, sold and employed, of course, solely for ornamentation. And there are other instances where those attempting to crank their cars when their batteries have gone dead and the engine kicked back on them, have been thrown against these dangerous projecting cap figures and as a result received severe wounds.

Naturally the hazard created by such ornaments on cars in motion is enormously increased. To be struck by a flat-surfaced radiator is bad enough—but when one is first automotively speared by a projecting cap gadget and a split-second later smacked by the car itself, matters become in no wise improved!

We saw a large foreign car this morning with one of these radiator cap ornaments that stuck out in front of the radiator all of ten, perhaps more, inches. It was pointed. So far as the danger created is concerned it might just as well have been a stiletto or other form of dagger. About the only agency of injury and death it lacked was a poisoned point!

With the increasing record of painful injuries and deaths such ornaments are establishing, and the fast-mounting criticism against their use from important insurance, safety, municipal and other organizations, it is likely their use will be prohibited as motor vehicle accessories by the different states and cities.

●

Bamberger Fleet Makes Nice Safety Record

OFFICIALS of L. Bamberger & Co., Newark, N. J., received a message of commendation from the Newark Safety Council last month, for the record achieved by the store's fleet of 150 delivery trucks which were operated 212,571 miles without a single traffic accident during the month of June.

"The Newark Safety Council would like to extend its congratulations to you, your supervisor in charge of traffic, and all of your drivers for this most splendid record," said R. E. Dobbins, treasurer of the Council, in a letter to William J. Wells, president of the Bamberger store. He added:

"It is indeed an indication of cautiousness on their part, which, if practiced by more drivers would result in a decided decrease of motor vehicle accidents. We wish you much success in the continuance of establishing records in this direction." The Bamberger delivery fleet was entered in the Safety Council's Inter-Fleet Drivers Safety Contest.

●

Eight States Have Safety Glass Laws

STATES which have passed laws making the use of safety glass in new automobiles mandatory are:

Iowa, Massachusetts, Michigan, Nebraska, New Jersey, New York, Pennsylvania, and Virginia. These states show about 35 per cent of the total motor vehicle registration.

In most of the 44 state legislatures, to convene next January, the question of such legislation or amplification to existing laws, will be raised.

Several states have written specifications for safety glass for use in motor vehicles.

Should Prices Be Stabilized?

THE goal of "stabilized commodity prices" is predicated upon a purely imaginary statistical device known as index numbers. As a rule, commodity-price indices are merely a composite of the wholesale prices of a group of raw materials.

But how many of the 130,000,000 consumers in this country ever bought a ton of steel, or a bale of cotton? We venture to say that none of the 24,000,000 automobile owners in the nation bought 2500 pounds of steel, rubber, cotton, and copper. No, they purchased a single finished product—an automobile.

What is a stabilized price for an automobile? If Chevrolet touring cars with four cylinders, two-wheel brakes, no self-starter, no bumpers, no snubbers, no electric lights and only a make-shift top as protection against the elements sold for $875 in 1914, would a stabilized price level mean that the same model should sell for the same price in 1934? If so, what would be a stabilized price for a 1934 model, with six cylinders, four-wheel brakes, knees, and all the other improvements invented in the past 20 years? Would it be $1200 or $1800?

If we are to succumb to the tenets of the inflationists, it seems inescapable that $1800 would be somewhere near a desirable stabilized price (in terms of 1914). Are we to assume that Detroit, Pontiac, and South Bend would thrive on the orders received from eager new buyers at such levels?

Is it not obvious that if stabilized prices, based upon index numbers, are a worthy goal in our proposed planned economy, we shall have to see to it that our index numbers are accurate? We shall, therefore, be forced to stabilize the products that go into index numbers also so that they may be strictly comparable—which means, of course, the elimination of changes in the products themselves. Thus we will be able to dispense with improvements such as those which have made the modern automobile incomparable to that of two decades ago, and in the process we can safely eliminate the profits and the exercise of ingenuity and ambition which made those improvements possible.—*from Barron's Weekly.*

●

The Texas Gasoline Patrol

THE midsummer sun beat down on a tank-truck travelling along a branch road in East Texas. Suddenly from a dirt road leading to a farmhouse the staccato sound of a motor-cycle came, and a uniformed patrolman shot out to the main branch after the truck.

As he pulled up beside the truck he waved the driver to the side of the road, and the truck came to a sudden stop.

"Where're you going?" the patrolman asked.

"Palestine."

"Where did you come from?"

"Houston."

"What're you doing on this road then? You turned off the Houston-Palestine road ten miles back. Let's see your manifest."

The sulking driver had no answer to this question, and he sullenly pulled out the paper showing how much gasoline he carried, where it came from, and its destination.

"Refinery—The George H. Williams Corporation," the manifest read. "Destination: The Star Oil Filling Station, Palestine." Tank Filled: 7 A.M., Tuesday, May 23, 1934. Load: 2,500 gallons."

(*Please turn to page* 56)

Ten Seconds—IT'S ALL YOU NEED to change Blowpipes

Above—The Prest-O-Weld Detachable Valve Body is supplied on all new-type Prest-O-Weld Blowpipes.

At Right—The Interchangeable Prest-O-Weld Blowpipe Handle Assembles illustrated are the Types W-105 and W-106 for welding, the Type C-105 for cutting, and the Type CW-105 cutting attachment.

WHY waste minutes hunting wrenches and wrestling with balky hose every time you change blowpipes? With the new Prest-O-Weld Detachable Valve Body you can snap on any one of four new-type Prest-O-Weld Blowpipes in ten seconds without disconnecting the hose or using a wrench.

This means you can switch from a large or small welding blowpipe to a cutting blowpipe or cutting attachment without a minute's delay. In shops doing a wide variety of work, this feature saves hours every month.

It also offers a real economy to the shop which must keep its apparatus investment low. Instead of buying four blowpipes, you buy one new-type Prest-O-Weld Blowpipe equipped with a detachable valve body. Later, when other blowpipes are required, merely buy the snap-on handles. These cost less than complete blowpipes, and one detachable valve body fits them all. Ask your jobber to show you how it works.

The Prest-O-Weld Type CW-105 Cutting Attachment attaches directly to the Prest-O-Weld Detachable Valve Body. It is small enough to be carried in the operator's pocket yet will cut metal up to 2 in. in thickness.

Price, complete with nozzles Nos. 1 and 2, lighter and wrench $15.00

Prices slightly higher west of the Rocky Mountains.

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation
126 Producing Plants UCC 850 Warehouse Stocks
IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

Sales Offices: Atlanta, Baltimore, Birmingham, Boston, Buffalo, Butte, Chicago, Cleveland, Dallas, Denver, Detroit, El Paso, Houston, Indianapolis, Kansas City, Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Phoenix, Pittsburgh, Portland, Ore., St. Louis, Salt Lake City, San Francisco, Seattle, Spokane, Tulsa

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MASTERCRAFT
TRUCK BODIES
Production
and
Custom Built
Body Equipment
Vocationally Designed
LUCE MANUFACTURING CO.
Lansing, Michigan

what's that—
change engine oil every 3,000 miles instead of every 1,000 miles?

Right! GLAZOIL accomplishes just that. Moreover, GLAZOIL reduces replacement parts expense, cuts repair bills, "runs-in" new motors properly, and lengthens life of old motors. The reason is that GLAZOIL keeps all wearing surfaces constantly "wet" with lubrication. GLAZOIL won't burn—won't freeze—won't break down. Find out the full facts for yourself. Write us today. The Glazoil Products Co.—1614 Coutant Avenue—Cleveland, Ohio.

Glazoil
COLLOIDAL GRAPHITE
PREVENTS FRICTION — REDUCES WEAR
CONVINCE YOURSELF
ORDER A TRIAL CAN

Say "I saw it in FLEET OWNER"—It Helps!

In **BOSTON...**

Stay at the

KENMORE

400 *Rooms with Bath*

- Modern, comfortable . . . convenient to shopping, business, the theatres. Ample parking space.
- Outside rooms, each with tub-shower and circulating ice water.
- Excellent food, moderately priced, in the Empire Room and English Grill Room and Bar.

Write for Booklet *"Historical Boston"*

from $3

At Kenmore Subway. All U. S. Routes lead to the Kenmore.

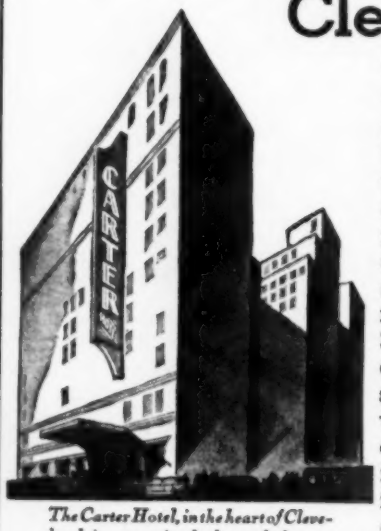
HOTEL **KENMORE**

Commonwealth Ave. at Kenmore Sq.

COLYAR P. DODSON, Manager

One of Boston's Newest and Finest Hotels

When You Come to Cleveland



The Carter Hotel, in the heart of Cleveland is conveniently located close to leading department stores, theatres, banks and transportation terminals.

Room Rates Begin at $2.50

When next you visit Cleveland come to the New Carter Hotel. A warm welcome awaits you—prompt, courteous service and delicious food at reasonable prices. Six hundred large, comfortable outside rooms each with private bath and circulating ice water. Exceptional facilities for conventions and sales meetings. Personalized management.

The **CARTER HOTEL**

PROSPECT NEAR EAST NINTH

CLEVELAND, OHIO

WILLIAM T. CRUSE, Manager

The patrolman pulled out his watch. It was eleven forty-five.

"You've been a long time coming 45 miles. Does it usually take you almost 5 hours to travel this far?"

"Well, I had some trouble with the engine," the driver grumbled.

"You can tell that to the judge. Come on, follow me." And the motor-cycle and the truck headed for Arp, the nearest station of the gasoline patrol.

The gasoline patrol is just one of the means used by the state of Texas to prevent gasoline tax evasion. On March 21, 1933, the Texas legislature put teeth in its gasoline tax law by strengthening its enforcement provisions. It was felt that gasoline tax evasions were too frequent and too easily effected.

In East Texas, where most of the evasion was formerly going on, a crew of 23 patrolmen work out of five different cities, patrolling the roads day and night. A truck driver never knows when he will be stopped and asked to show his manifest, and a refiner never knows when an inspector will appear at his plant.

The manifests issued by the distributors, covering full details concerning all gasoline shipments, must be kept by the dealers, to whom they are sent, for a period of two years, and the dealers must also maintain complete and accurate records of all gasoline sold as well as bought. Records of the refiners and distributors must also be kept for the same length of time, so that inspectors are able to check one set of records against the other. Inspectors are also empowered to gauge or measure the contents of all storage tanks, containers, and other equipment, and to take samples.

All of the money paid into the treasury under the provisions of the law is set aside in a special fund known as the Highway Motor Fuel Tax Fund. As a result of the new law, the state collected $3,000,000 more in gasoline taxes the first nine months the law was in operation than they had collected in the same months the year before.

●

Motor Vehicle Output 75 Per Cent Ahead of 1933

MOTOR vehicle production for the first half of 1934 was 1,802,442 units,—an increase of 75 percent over the corresponding period last year, according to a preliminary estimate released in July by the National Automobile Chamber of Commerce.

The Chamber estimated the industry's June output at 328,000 units which was a decrease of 7 percent under the preceding month and an increase of 27 percent over the same month a year ago.

The estimate which is based upon reports of factory shipments is summarized below:

June 1934	328,000
May 1934	351,802
June 1933	257,613
6 Months 1934	1,802,442
6 Months 1933	1,031,839

●

Position Wanted (Adv.)

MAINTENANCE Superintendent, with 16 years of practical experience behind him, seeks position with truck or bus fleet. Thoroughly familiar with heavy-duty vehicles, such as Mack, White, Autocar, etc. Have handled as high as 150 trucks. Willing to locate anywhere. Thorough knowledge of tractor and trailer work.—R. N., c/o Editor, FLEET OWNER, 90 West Street, New York City.

One Color Scheme for Chrysler's Own Fleet

A Committee headed by such prominent automobile officials as K. T. Keller, president and W. J. O'Neil, vice-president in charge of manufacturing of Dodge Brothers Corporation, chooses the distinctive, uniform color combination in which all Dodge trucks operating between the various factories of the Chrysler organization will hereafter be finished.

The plan for having the hundreds of Dodge trucks assigned to Chrysler inter-plant service done in one and the same color scheme—orange bodies with blue moldings—is a very practical one; it enables transportation supervisors, material handlers, gate tenders, suppliers, traffic officers and the public to identify the spick-and-span corporation trucks from others entering yards, leaving loading platforms or plying city streets.

In Detroit alone, 341 Dodge trucks (101 more than in 1933) travel the plants of Chrysler Motors. During the first three months of 1934, materials transported by the trucks amounted to 226,285.65 tons, as against 85,851.28 tons handled during the corresponding three months of 1933.

The entire fleet of 341 trucks is headquartered at, and directed from, the main plant of Dodge Brothers Corporation, Detroit, Mich.

●

QUESTION-*of-the*-MONTH DEPARTMENT

(*Continued from page* 45)

Can Operate 475 Trailers With 100 Tractors

"WE operate 475 semi-trailers, equipped with stake bodies. We think that they are even safer to operate than straight trucks and are more flexible in traffic, too.

"As to advantages, we can operate these 475 trailers with 100 tractors and we need no special place to park the trailers. Very little servicing is required; only body tightening. As these trailers are not operated at night, we have no electrical connections to cause trouble. These trailers do not impose any extra maintenance expense on the tractors.

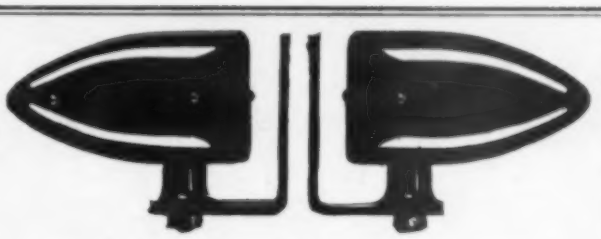
"We serve 23 railroads between St. Louis and East St. Louis. Our cost is very low on account of slow speeds and short hauls."—*Ben F. Weber, Supt., Columbia Terminals Co., St. Louis, Mo., operating a fleet of 172 trucks, 113 tractors, 12 passenger cars and 475 trailers.*

●

Unsatisfactory Experiences With Top Oilers

"WE have in the past used top cylinder oilers, with the intention of preventing excessive cylinder wear. The results were stuck valves and rings, and fouled spark plugs, as well as an increase in the formation of carbon.

"We used these products for about four months and they did not seem to do anything which their makers claimed. In fact they increased our maintenance costs. We used them in the recommended way, too—feeding the lubricant slowly in overhead oiler, through the intake manifold."—*Edw. J. Simpson, Supt. Equip., Interstate Power Co., Dubuque, Iowa, operating a fleet of trucks, buses and passenger cars.*



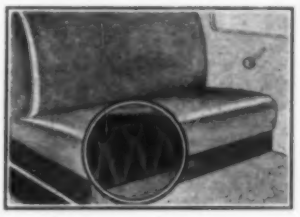
Is Simple in Operation. Visible by Day and Night. Gives a Flashing Light.

Approved by Connecticut and Other States

TURNSIGNAL CORPORATION
400 E. RITTENHOUSE ST., PHILADELPHIA, PA.

No More — WORN OUT CUSHIONS!

Accurate Service Records of Large Truck Fleets over 3-year period show that



Black Diamond
All-Rubber Cushions
Last Longer and Ride Easier than any other kind.

KARPEX MFG. COMPANY
INDIANAPOLIS, INDIANA

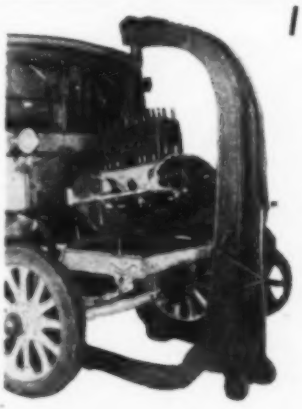
WRITE FOR FREE FOLDER AND PRICE LIST

Value When You Go To PHILADELPHIA

600 ROOMS BATHS
A ROOM and A BATH For TWO and A HALF

$2.50 SINGLE WITH BATH — $4.00 DOUBLE WITH BATH

HOTEL PENNSYLVANIA
39th AND CHESTNUT STS., PHILADELPHIA



IT IS FAR MORE ECONOMICAL....

to have in your maintenance department a well built, heavy duty crane which can be used FOR ALL PURPOSES, than to buy a small cheap one that can be used for small work only. This has been proved in hundreds of plants equipped with Canton Portable Cranes. Being mounted on small sturdy wheels, these cranes are easily taken to the job wherever it may be. It pays for itself quickly. Write for full details.

THE CANTON FOUNDRY & MACHINE CO.
CANTON, OHIO
New York Office—Room 704
401 Broadway

VELLUMOID GASKETS

For the Oil, Gasoline, and Water Connections

While VELLUMOID is a fibre packing, not all fibre packings are by any means VELLUMOID

VELLUMOID is so well known by the trade that they have come to consider the name VELLUMOID to mean any fibre packing.

This is not so, for VELLUMOID is a distinct product and like all products which are good and constantly used, there are now many fibre packings on the market which are sold as "just as good as" or "the same as" VELLUMOID.

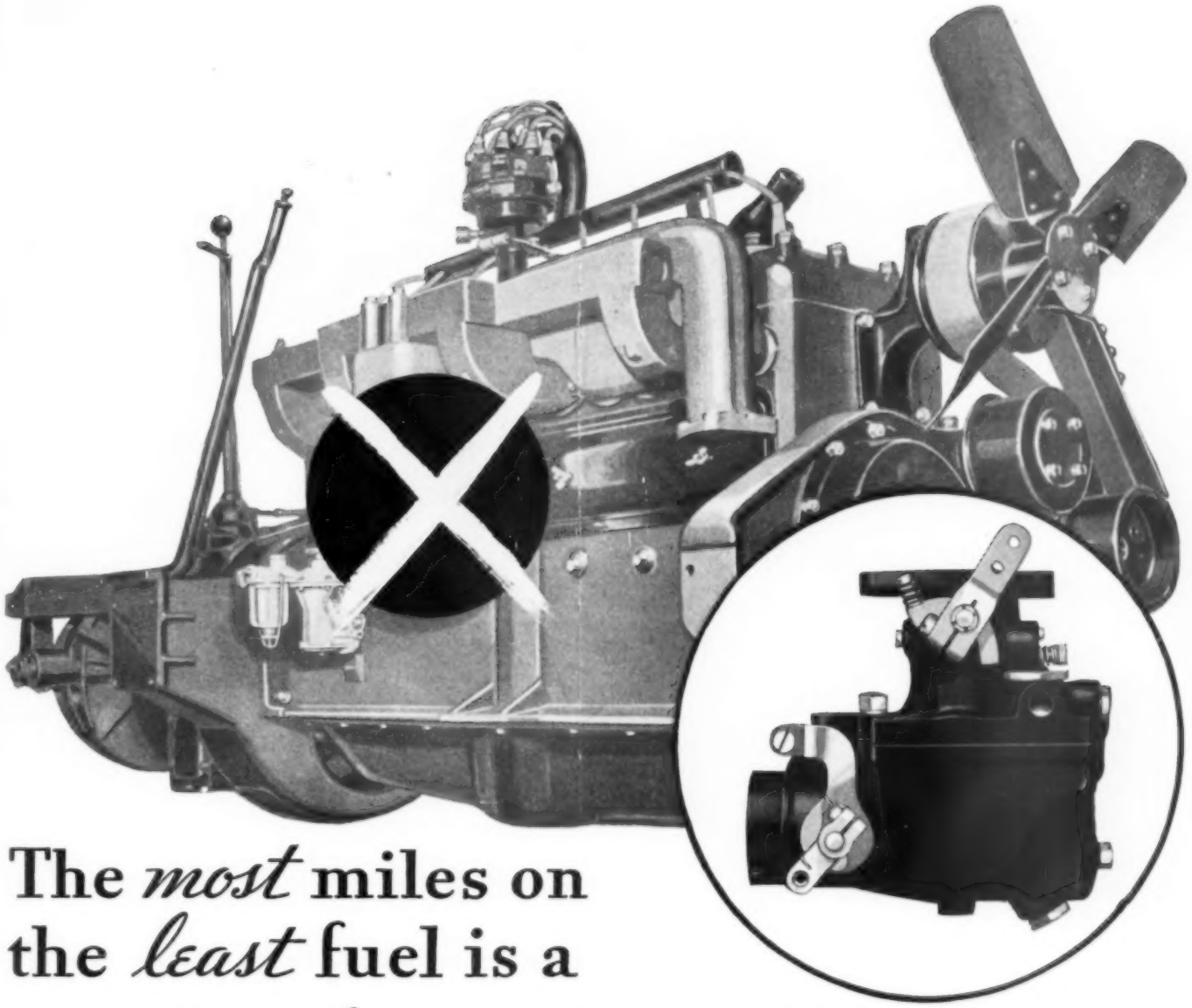
You know what VELLUMOID is without our telling you, and if you desire this product instead of a substitute, won't you insist that you receive what you want?

The word VELLUMOID is branded on every foot of Vellumoid Sheet Packing and we make no sheet packing under any other name.

The Vellumoid Co., Worcester, Mass

ADVERTISERS INDEX:

Acheson Colloids Corp.	—
Air-Maze Corp.	48
Aluminum Co. of Amer.	4th Cover
American Cable Co.	—
Bendix Products Corp.	3rd Cover
Blackhawk Mfg. Co.	21
Burgess-Norton Mfg. Co.	—
Cambridge Instrument Co.	52
Canton Fdry. & Mach. Co.	57
Carter Carburetor Co.	12
Carter Hotel	56
Champion Spark Plug Co.	5
Cities Service Co.	29
Cummins Engine Co.	27
DeVilbiss Co.	—
Ditzler Color Co.	—
E. I. du Pont de Nemours Co.	31
Electric Storage Battery Co.	8
Fafnir Bearing Co.	35
Federal Motor Truck Co.	—
Firestone Tire & Rubber Co.	—
Fitzgerald Mfg. Co.	—
Fostoria Pressed Steel Co.	54
General Electric Co.	17
General Motors Truck Co.	6
Glazoil Products Co.	55
Goodrich Rubber Co., B. F.	37
Grapholyte Mfg. Co.	23
Greene, Tweed & Co.	53
Hall Mfg. Co.	25
Handy Governor Corp.	—
Haskelite Mfg. Corp.	52
Hoof Products Co.	7
International Harvester Co.	—
Johns-Manville Corp.	—
Karpex Mfg. Co.	57
Kenmore Hotel	56
Linde Air Products Co.	55
Luce Mfg. Co.	55
Miley Co., L. J.	—
Motor Improvements, Inc.	—
Oxweld Acetylene Co.	55
Packard Electric Co.	2nd Cover
Pennsylvania Hotel	57
Pennzoil Co.	19
Prest-O-Lite Co.	55
Raybestos Div. of Raybestos-Manhattan, Inc.	—
Ray Day Piston Corp.	—
Roloff, Inc.	52
Ross Gear & Tool Co.	—
S.K.F. Industries, Inc.	33
Schrader's Son, Inc., A.	50
Service Recorder Co.	49
Service Station Equipment Co.	—
Sherwin-Williams Co.	11
Skinner Motors, Inc.	51
Sponge Rubber Products Co.	54
Thompson Products Co.	4
Timken-Detroit Axle Co.	—
Toledo Steel Products Co.	10
Turnsignal Corp.	57
Union Carbide & Carbon Corp.	55
Union Carbide Sales Co.	55
United-American Bosch Corp.	15
United States Plywood Co.	54
Utility Trailer Mfg. Co.	3
Valentine & Co.	—
Vellumoid Co.	58
Weatherhead Co.	47
White Motor Co.	—
Wilkening Mfg. Co.	9
Worthington Pump & Machinery Corp.	—



The *most* miles on the *least* fuel is a *Carburetion Problem*

NEW rings, new pistons, new plugs, can do a lot to bring new pep to old engines. They can *help* to give you better gasoline mileage.

But they *can't* do the whole job! . . . not as long as you have to depend on an old, worn carburetor for the all-important work of metering out the fuel, mixing it, and delivering it!

Here is a carburetor, designed and built by Stromberg strictly for heavy-duty truck and bus service. Stromberg Carburetors are standard equipment on more makes of American motor cars than all other carburetors combined. The reason is not price, but demonstrated high efficiency.

Look to your carburetor if you are looking for economy. And look to Stromberg, pioneer of a score of great carburetion advancements, for a replacement unit that will let your engine do its best—in economy, in power, in pickup, in ease of starting.

This famous *heavy-duty* STROMBERG "SF" is the answer!

Stromberg series "SF" Carburetors follow the only principle of carburetion which has proved continuously successful for all heavy-duty work. This unit will perfectly handle all present-day high speed, heavy-duty engines, regardless of size or speed. Built in 5 sizes: 1", 1¼", 1½", 1¾" and 2". Moderate price. Available with or without accelerating pump and Vacuum Economizer, and usable with or without governors.

BENDIX PRODUCTS CORPORATION
(Stromberg Carburetor Division)
401 Bendix Drive South Bend, Indiana

STROMBERG CARBURETORS

A BENDIX PRODUCT

Some astonishing facts

MORE THAN 140,000 MILES

NO TROUBLE

We are MORE THAN PLEASED

A 5,000-gallon unit operated from Cushing, Oklahoma, by Deep Rock Oil Corporation, Chicago. Both Tanks built of Alcoa Aluminum Alloys by Farrell Manufacturing Company, Joliet, Illinois.

H. N. GREIS AND BERNARD L. MAJEWSKI, ANCILLARY RECEIVERS

DEEP ROCK OIL CORPORATION

PETROLEUM DEEP-ROCK PRODUCTS

135 NORTH CLARK STREET

CHICAGO

GENERAL SALES OFFICES

April 23, 1934.

Aluminum Company of America,
520 N. Michigan Boulevard,
Chicago, Illinois.

Attention, Mr. Wm. S. Anderson.

Gentlemen:-

Some astonishing facts concerning the service given by our aluminum truck train operating from Cushing, Oklahoma will probably be of interest to you.

For the past two years, this particular job has travelled more than 140,000 miles. These were not boulevard miles either and not once have we experienced trouble with the train.

During the first two years of service, this sturdy aluminum train delivered about twelve million gallons of petroleum products.

We are more than pleased with the performance of this unit.

Very truly yours,

C. J. Footy,

SUPERINTENDENT
AUTOMOTIVE EQUIPMENT

CJF:LO

ALCOA

Add to the facts in this letter the fundamental reason why these tanks were built of Alcoa Aluminum: 620 gallons were added to the pay-load *every trip* without exceeding the highway weight limit.

There are just two reasons for building truck bodies and tanks of Alcoa Aluminum. You can *greatly decrease gross weight* for a given capacity and make real savings in cost. Or you can *increase profitable pay-load materially* within your limiting gross weight. That cuts costs, by reducing trips.

All this is accomplished because Alcoa Aluminum is as strong as steel, but weighs only one-third as much. And it stands the gaff, as this letter testifies.

We have packed our book, "Alcoa Aluminum for Truck Bodies," full of weight saving and operating data and detail construction drawings for various types of bodies. May we send you a copy?

ALUMINUM COMPANY OF AMERICA, 1861 GULF BUILDING, PITTSBURGH, PA.

NRA

ALCOA · ALUMINUM